

Consumers' Research Bulletin



February 1953

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Consumers' Research Bulletin

OFF THE EDITOR'S CHEST

THIS IS the season of the year when adult education courses are going full blast. Handicrafts of various types, current events, social attitudes, appreciation of music and literature, languages, stenography and typing, are subjects frequently featured, depending on the teaching personnel available. In this scientific day and age when suburban homes are highly mechanized and nearly all homeowners are learning to make repairs about the house themselves because of the high cost and scarcity of labor, there is a great service to be rendered by those who plan the courses to be given at these evening sessions. What many homemakers need, particularly those who have never had a basic course in what is sometimes called "household engineering," is a simple, but graphic, presentation of how to make small home repairs such as changing the worn washer of a leaky faucet, replacing a blown fuse, what to look for when the vacuum cleaner or washing machine goes haywire and just won't work, how to replace a worn electric iron or lamp cord.

There is no need for a woman to learn to be an engineer or a mechanic in order to run her appliances efficiently, but she can save herself considerable annoyance and inconvenience, as well as money, if she will learn a few fundamental facts that are needed to run a mechanized household successfully. Servicemen report that dirt-clogged vacuum cleaners bring in the majority of their home service calls. Often, all that is needed is to empty the dirt container or clean the filter, a simple job that the housewife can do herself if she knows what is required. What happens is that as the container fills up with dirt or the filter becomes clogged, the flow of the stream of air that provides the suction is choked off and less dirt is drawn in, so that in time the cleaning ability of the appliance may be almost zero. Equipment experts advise emptying the dirt container after every general cleaning.

Then there is the little matter of replacing a blown fuse, simple and easy if you know how, but a matter of something like \$5 if you send for an electrician or appliance serviceman. The fuse or circuit breaker is a method of providing protection against an overload on the house wiring. Too many appliances plugged in at one time, when all the lights are on or the television set is turned on may have caused the trouble, or the washing machine may be on a line that already carries

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Consumers' Research functions to provide unbiased information on goods bought by ultimate consumers. For their benefit (not for business or industry) and solely with the funds they provide, CR carries on tests and research on a wide variety of goods, materials, and appliances, and publishes the findings in CR Bulletin. Consumers' Research is a non-profit institution, and is organized and operates as a scientific, technical, and educational organization.

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CR will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.

★★★ For a brief cumulative index of the 1953 BULLETIN preceding this issue, see page 11.

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The Consumers' Observation Post

PLASTIC ICE CUBE TRAYS in attractive colors often tempt the homemaker to substitute them for the metal trays that are always supplied with a mechanical refrigerator. While they are inexpensive, they have certain disadvantages. In many cases, those examined by CR had no suitable arrangement for leveling their water content, and each individual cube compartment had to be filled separately. It took about three times as long for ice cubes to freeze in four different plastic trays as in a metal tray of the lever type found in the late model refrigerators. Contrary to the advertising claims, ice cubes were found to be difficult to remove from plastic trays. In general, the metal trays are considered more convenient and practical to use.

* * *

TO DRIVE A NEW AUTOMOBILE COSTS about 8 cents per mile, according to a recent study by the University of California. That's for a moderate-priced car. If you drive a high-priced automobile, it will cost you more than 10 cents a mile for transportation. If you can do your own repair work and have no garage rent, you can cut these figures down considerably. Professor Ralph A. Moyer, who made the study, pointed out that even at 10 cents a mile, automobile transportation is cheaper than it was in 1903, when costs ranged from 10 to 20 cents per mile for an ordinary car. He found that tires are better and cheaper now, and gasoline is better at about the same price (including higher taxes) than it was 30 years ago. In the United States there is about one car for every four persons.

* * *

SOAP is losing ground to synthetic detergents so rapidly that in 1952 detergents had captured about 60 percent of the cleaning market, reports The Wall Street Journal. The suppliers of basic material for soap, such as tallow, however, have not given up hope of staging a comeback. They are reported to be taking the position that detergents create unlovely-to-look-at hands and are hopeful that the day will come when women, tired of having their hands roughened by the synthetics, will return to the use of real soap. Of course, there are always the hand lotion manufacturers and the makers of rubber gloves who may see an opportunity to improve the situation from the standpoint of increasing the sales of their products.

* * *

ORANGE JUICE in the frozen concentrate form has been extensively advertised as having vitamin C content equal to that of juice from freshly squeezed oranges. There is, however, a wide range in the vitamin C content (as measured by the ascorbic acid values) of various brands on the market and even variations in different samples of the same brand. In a study made by Professor E.E. Anderson and Professor I.S. Fagerson of the University of Massachusetts, it was found that five brands of 20 examined had average values of less than 40 mg. of reduced ascorbic acid per 100 ml. of reconstituted juice (concentrate to which three volumes of water had been added). Within the same brand the ascorbic acid content varied from 30.3 to 49.6 mg. per 100 ml. of reconstituted juice for one brand and an over-all range of 28.7 to 51.5 mg. which represented the extreme differences between the 20 brands examined. The researchers point out that to meet the levels of 70 to 75 mg., the recommended allowance of vitamin C for adults, per day, it would be necessary to consume a 9-1/2-ounce glass of the reconstituted product with the lowest vitamin content, or 5 ounces of the brand with the highest vitamin content.

COSMETIC CREAMS CONTAINING ESTROGEN or hormone creams should be required to carry a warning label advising intermittent rather than continuous use. That is the considered opinion of Dr. Minnie B. Goldberg and Dr. Franklin I. Harris of Mount Zion Hospital, San Francisco. In a report for the Journal of the American Medical Association, they describe the case of a 40-year-old woman who regularly used estrogen creams and lotions on her face, neck, arms, and legs for many months with unfortunate systemic effects.

* * *

WOOL BLANKETS need proper care in order to obtain a maximum service life from them. Tests made under the direction of Professor Elaine Knowles Weaver at Ohio State University indicate that good blankets can be washed in automatic washers and dried in either gas or electric dryers quite successfully provided attention is given to the details of proper handling and time is taken to block the blankets. It was found, however, that washing methods had more influence on shrinkage than the dryer. The drying method that produced the least amount of shrinkage was the inclusion of five pounds of dry buffer materials with the wet blankets. These dry materials were preheated in the dryer and, when the blankets were added, they were distributed in and around the blankets to reduce the agitation and felting of the wool. After approximately 75 percent of the moisture had been removed, the blanket was withdrawn and patted or blocked into shape on a table or floor and allowed to finish drying in the air.

* * *

BRONCHIAL ASTHMA is, in the opinion of Dr. Leon Unger and Dr. Albert H. Unger, of Chicago, an allergic disease. The symptoms are generalized wheezing, quick and labored breathing, and coughing. In a study published in the Journal of the American Medical Association, they indicate that the shielding of patients from potent allergens is essential. Dust of all types, from pets, bedding, drapes, stuffed toy animals, should be avoided or kept to a minimum. Kapok, which is found in many pillows and mattresses, is considered a potent allergen and should be barred, not only from the asthma sufferer's use, but from the home entirely. Avoiding contact with pollen which may cause hay fever and bring on asthma is more difficult, but sensitivity tests should be given children before they leave for summer camps. Foods such as eggs or milk can also cause asthma. The problem of what to avoid in such cases is often difficult to determine, for the list of offending substances often seems endless.

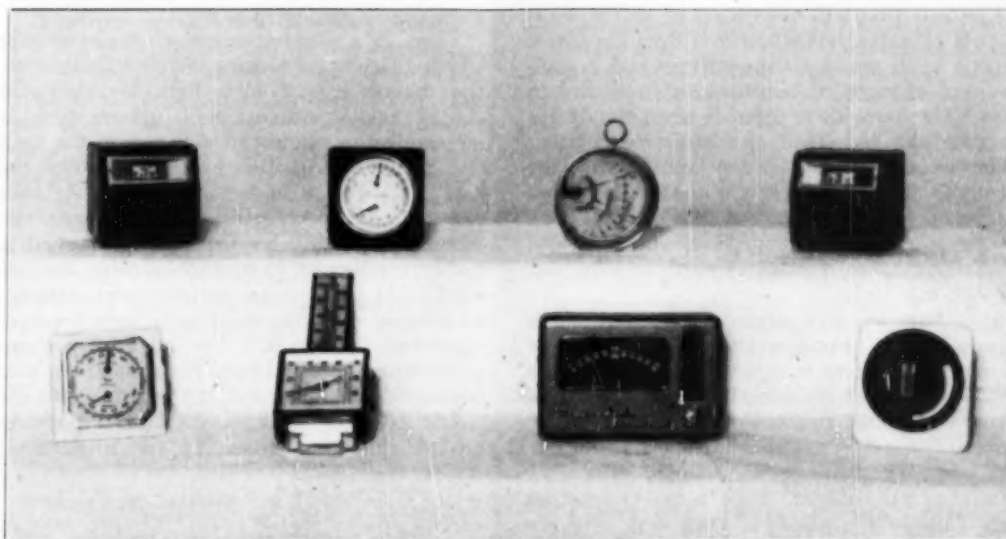
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BRASSY STAINS AND OTHER DISCOLORATIONS ON SILVERWARE sometimes make their appearance in connection with the use of a mechanical dishwasher. The problem has been studied by researchers Leslie R. Bacon and Eugene G. Nutting, Jr., of the Wyandotte Chemicals Corp., who found that the tarnishing occurred when the silverware was in electrical contact with copper or alloys containing it, or a strongly electronegative metal, such as aluminum or zinc. Machine parts themselves may cause trouble, and if the base metal of silver-plated ware is exposed due to imperfections and wear, it may also be a cause of staining. Some dishwashing detergents such as those based on the use of polyphosphates make the copper soluble and cause tarnishing even when the metal is present in such small quantities as one-half part per million. The difficulty, however, appears to be chiefly of interest to those who use commercial, hotel, or restaurant dishwashing machines, although one appliance manufacturer has advised that badly worn plated silver might suffer electrolytic action in a domestic dishwasher in the presence of uninhibited detergents.

* * *

TULIP BULBS that won't bloom have been the subject of complaints to a number of Better Business Bureaus in various parts of the country. In an investigation to check on the performance of "100 tulip bulbs for \$1.69" offered by the Michigan Bulb Co., Grand Rapids, Mich., the Better Business Bureaus in various parts of the country purchased some 3000 bulbs and had

(The continuation of this section is on page 33)



Top Row: Serdex Utility Hygrometer; Airguide Model 103A; Luft; Serdex Certified Hygrometer.
Bottom Row: Taylor Humiguide; Airguide Elton Model 101; Hygrodiol; Humidial.

Humidity Indicators

MOISTURE in the air is measured in terms of percentage of *relative humidity* (zero humidity is dry air; 100 percent relative humidity exists when the air contains all the moisture it can carry without depositing any as condensed moisture on a surface at room temperature). There are very few circumstances in which there will be any justification for *adding* humidity to the home through a device designed for the purpose. The average home has too much rather than too little water vapor during a good part of the year. There are many sources of water vapor in the average home: bathing, washing and drying clothes, mopping, cooking, washing dishes, gas and oil-burning appliances which are unvented or improperly vented (such appliances give off large amounts of water vapor); water vapor is given off, too, by occupants of the home in the form of perspiration, and vapor is carried out of the lungs in the process of breathing. The difficulty with excess water vapor indoors is that moisture will become deposited

in the colder parts of the walls and roof and there remain or be frozen into frost to thaw and drip into other parts of the house when warmer days come, and in any event, to produce a degree of deterioration of walls and timbers, which in some cases may be very serious.

Sometimes the amount of moisture in the home is so great that there is condensation on windowpanes, even on cold wall surfaces, to a serious extent, and in such cases, extra effort must be taken to reduce the amount of humidity in the room by removing the drying of laundry to out of doors, or to a well-ventilated room with open doors and windows, or it may be necessary to bring in outdoor air — with added fuel cost, as a result — to help dry the house (when the outdoor air is of satisfactory dryness). Frosting or condensation of moisture will take place even on double windows, when the relative humidity runs above 50 percent in cold weather. There is a considerable sale nowadays for devices intended to *extract* moisture from the home or

parts of the home, particularly damp cellar spaces or other below-ground rooms, during periods of unusual dampness. An example is the *Frigidaire Dehumidifier* which sells for about \$140.

Condensation will always occur in the walls in cold climates, but whether it does harm will depend upon outdoor temperatures and humidity, and changes of temperature from day to day. The harm done depends upon the length of time during which the moisture remains when weather and humidity conditions have changed. The more tightly a house is built and the better it is insulated, the more harm is done by moisture and frost deposits in the walls. The tendency to damage is more serious, too, on still, cold days.

High humidity is disadvantageous in a number of other ways. For instance, an upper limit of 65 percent relative humidity is considered the maximum at which clean steel will be safeguarded against rusting. At and below 30 percent, active corrosion will stop, and mildew, rot, and mold will be so retarded that they need not be of concern. High humidity may not only damage the woodwork but may often be detrimental to the paint on the exterior of the house as the water passes through the boards from the inside to the outside paint-coated surface. Furniture is adversely affected by humidity that is too low, and glued furniture suffers in a dry atmosphere, since the joints and the veneer are apt to come unstuck.

One method by which heat is abstracted from the body to maintain its correct temperature is evaporation of perspiration from the skin. If the moisture content of the air in the room is high (relative humidity near 100 percent), evaporation from the skin is necessarily slow, since the capacity of the air to take up additional moisture is greatly reduced. Hence the expression "It's not the heat; it's the humidity."

There is perhaps to some small degree a conflict between the requirements for human health and comfort and those for the preservation of the house, but from the health standpoint, the problems are known to be minor, and usually quite unimportant. So far as concerns a house using wood or wallboard in its walls, reasonable requirements are that humidity be not permitted to exceed about 40 percent in ordinary cold weather, 30 percent at outdoor temperatures between zero and 15 degrees, 20 percent in sub-zero weather.

The percentage of moisture present has a definite effect on the feeling of well-being. Air that is very dry or very damp — almost to the point of saturation — is unpleasant. Air *motion*

also enters into the question of bodily comfort, but in the average home reasonably free from drafts, this is not an important consideration, except that in hot weather, free movement of air is very helpful in keeping the body comfortable.

There is a steady stream of misinformation which reaches consumers in advertising about the desirability of high humidity, including claims that large amounts of fuel are saved by increasing the amount of moisture in the air of the home during the heating season; that health is better at higher humidities. Actually, tests by unbiased investigators indicate that increased humidity has little beneficial effect on bodily comfort at room temperatures normally used. (At lower room temperatures, attempts to increase humidity tend even to increase the sensation of chilliness.) The only circumstances under which artificial humidification of the home would be desirable from the health standpoint would be one in which a qualified physician advised increased humidity for a particular disease condition. The question of humidity in relation to health is discussed on the basis of careful studies in the book "Temperature and Human Life," by C.-E. A. Winslow and L. P. Herrington (Princeton University Press, Princeton, N. J., \$3.50).

A Committee of the American Medical Association which has been making a study of air conditioning has given assurance that artificial humidification is "relatively unimportant from the standpoint of comfort and, so far as is known, not essential from the standpoint of health."

Unfortunately, there is no direct method of measuring relative humidity with a high degree of accuracy and dependability. A number of instruments (hygrometers) are available for household use that depend, for their indication, on the change of length of a human hair or of a strip of paper with changes in the air moisture. The modern cheap household hygrometers usually use paper as the sensitive material. CR's test of hygrometers, manufactured by six different companies, consisted of a check of the accuracy at three different relative humidities and at three different room temperatures. (The ranges of humidity and temperature were within the ranges normally encountered in the home.) The hygrometers were also checked outdoors under various humidity conditions. CR's tests indicated that the instruments with only one or two exceptions gave an *indication* of humidity trends rather than correct readings within a percent or two of relative humidity, as would be expected of a real measuring instrument. In some cases the errors of the instruments were over

30 points. Positive errors indicate readings of humidity *in excess* of the actual values; negative errors correspond to indications *below* the actual relative humidities.

The errors in relative humidity readings which are given in the listings were measured at 80°F room temperature, the first figure in the listings at 23% actual relative humidity, the second at 50% actual relative humidity, and the third at 65% actual relative humidity. The errors in parentheses were measured outdoors at 56°F and 55% actual relative humidity and at 75°F and 92% actual relative humidity. All the instruments have a range of indication of 0-100 percent relative humidity. All ratings of hygrometer-thermometer combinations are based upon performance of the hygrometer only.

All ratings are cr52.

B. Intermediate

Airguide, Model 103A (Fee & Stemwedel, Inc., 2210 Wabansia Ave., Chicago 47) \$2. Desk hygrometer and thermometer combination. Black, rectangular plastic case with round dial. Temperature range of thermometer, 20-120°F. Humidity errors: +7, -6, -6 (-1, -6). Maximum error, +9 at 65°F and 16% relative humidity. Maximum error of thermometer, +6°F at 39°F, poor. **1**

Serdex Certified Hygrometer, Model 82350B (Serdex, Inc., 91 Cambridge St., Boston 14) \$15. Desk type, brown rectangular plastic case with perforated sheet-metal back. The drum-type dial is rotated by a sensitive membrane through a linkwork. Errors: +4, 0, -0.5 (+3, -2). Maximum error, +8 at 63°F and 48% relative humidity. This model has been discontinued, but may be available in some stores. **3**

Serdex Utility Hygrometer, Model 82350A (Serdex, Inc.) \$10. Identical to the one described above except that it lacks the inscription "Certified Model" on front of case, and is sold at a lower price. Errors: +7.5, -1.0, -1.5 (+7, -3). Maximum error, +9 at 63°F and 48% relative humidity. This model

has been discontinued, but may be available in some stores. **3**

C. Not Recommended

Humidial (Humidial Mfg. Co., 1536 Connecticut Ave., Washington 6, D. C.) \$1.60. Desk hygrometer and thermometer combination with means for hanging on wall. White, rectangular case with round black dial. Temperature range, 10-100°F. Errors: +15, +5, +4. Maximum error, +27 at 65°F and 16% relative humidity. Maximum thermometer error, +4°F at 33°F, poor. **1**

Taylor Humidiguide, Ashton Model, No. 5546 (Taylor Instrument Companies, Rochester, N.Y.) \$2.25. Desk hygrometer and thermometer combination. Cream-colored rectangular plastic casing. Temperature range, 20-120°F. Errors: +10, -6, +9 (-2, +6). Maximum error, +14 at 63°F and 48% relative humidity. Maximum error of thermometer, -1° at 39°F, very good. **1**

Airguide, Eton Model 101 (Fee & Stemwedel, Inc.) \$5. A wall-type combination hygrometer and thermometer. Black plastic case with silver painted dial. Temperature range, 30-110°F. Errors: -0.5, -2.0, +6 (-5, +13). Maximum error, +14 at 61°F and 63% relative humidity. Maximum thermometer error, +1° at 33°F, very good. **2**

Luft (Made in Germany) \$8.50. Wall-type, round aluminum case hair-type hygrometer. Errors: +32, +28, +33 (+26, registered over 100% at 92). Maximum error, +37 at 63°F and 48% relative humidity. Instrument can be adjusted easily to a given known value of humidity by means of an adjusting screw on the back. Accuracy of instrument after readjustment would warrant a *B-Intermediate* rating. **2**

Hygrodial, Model 185 (Friez Instrument Div., Bendix Aviation Corp., 1400 Taylor Ave., Baltimore 4) \$18. Desk hygrometer and thermometer combination, with means for hanging on wall. Gray, dappled rectangular metal case, rectangular dial, hair-type hygrometer. Temperature range, 0-110°F. Errors: +9, +2, +7 (-4, -4). Maximum error, +12 at 63°F and 48% relative humidity. Maximum thermometer error, 2.5° at 33°F, fair. Superseded by *Model 186* which appears to be similar. **3**

Corrections and Emendations to Consumers' Research

Annual Cumulative Bulletin (ACB)

Permanent Anti-Freezes
Page 190
ACB '52-'53
Change listing of *Allstate Permanent* from *C. Not Recommended* to *B. Intermediate*. This Sears-Roebuck brand of anti-freeze, which formerly had propylene glycol as a base, now has an ethylene glycol base (similar to *Prestone*).

Tape and Wire Recorders
Page 126
ACB '52-'53
The name and address of the manufacturer of the *Crestwood Magictape Recorder* should be changed to read: Crestwood Recorder Div., Daystrom Electric Corp., 5990 Northwest Highway, Chicago 31.

Food Choppers without Table Clamps

SINCE many modern kitchens do not provide a place where a food chopper can be clamped into position, food choppers that are advertised to require no clamps have appeared in many stores. Generally these choppers have broad bases and rubber feet or perhaps suction cups to keep them from moving about. The fact that the choppers need no clamping is appealing, but experience quickly proved the sales appeal wasn't supported by the facts of use. When round steak was ground in the *Enterprise No-Clamp* and the *Universal Tab-L-Top*, two food choppers having rubber feet, they could not be held down firmly during grinding because of considerable rocking and "walking" on the table top. The third chopper tested, the *Rival Grind-O-Mat*, had a rubber suction cup on its bottom that could be made to adhere to the work surface by pressing a lever located on top of the base. This chopper was satisfactorily stable when used on these smooth surfaces: porcelain, glass, wood, linoleum, enamel, and a material like *Formica* (a smooth plastic composition material much used on kitchen tables and counters). The suction cup did not adhere, however, to a surface which was not smooth and true.

Two of the three choppers, the *Enterprise* and *Grind-O-Mat*, ground round steak and crackers for cracker crumbs satisfactorily when the plates for fine grinding (having numerous small holes) were used. The round steak fed through the *Enterprise* and *Grind-O-Mat* was more uniformly ground than that fed through the *Universal*, which gave a "chewed" appearance to the meat. The "chewing" action of the *Universal* was such that, when steak was ground, more juice was lost from the meat than with either the *Enterprise* or the *Grind-O-Mat*. Some of the steak caught around the knives and behind the plates of each of the three choppers — a general fault with most choppers. Crackers and meat ground in the three choppers did not show any discoloration.

All three choppers were easy to assemble; they were simple in construction, and the directions for using them were clear. The hopper



These are food choppers that are made to be used without being clamped to the table. From left to right: *Universal*, *Rival Grind-O-Mat*, and *Enterprise*.

of the *Grind-O-Mat* was held in position by a latch (a dovetail slide with a catch); it was readily removed when desired.

The *Enterprise* and *Grind-O-Mat* choppers had mouths wide enough to permit thorough cleaning. The *Universal* had a hinged hopper intended to make cleaning convenient, but proper cleaning of the hinged section itself was troublesome. The plates and knives from the *Enterprise* and *Universal* choppers, as well as the hoppers, were not protected adequately against rusting, and all showed signs of rust at the end of the test; none of the parts of the *Grind-O-Mat* showed any signs of rust. Care should, of course, be taken to dry the knives and plates thoroughly, after cleaning.

Each of the three choppers is larger than most of the old-style clamp-on choppers and would require storage space often not available in the modern compact kitchen. The *Universal* would not sit flat on a shelf because it has two extensions with rubber grips on one side that were made to fit over the edge of the table or work surface on which it would be used. These extensions were of such design that they might scratch a finished surface on which they were stored.

The protective coatings of tin on two of the choppers were not checked for contamination by lead.

A. Recommended

Rival Grind-O-Mat (Rival Mfg. Co., 22 St. and McGee Trafficway, Kansas City 8, Mo.) White enamel-coated base and standard, \$10; with chrome base and standard, \$13. One permanent cutting plate and two interchangeable cutting plates, one for grinding meat, and one for grinding vegetables (side marked "fine" is turned out for fine grinding; "coarse" is turned out for coarse grinding). Cylindrical hopper was attached to base by dovetailed slide arrangement with conveniently working catch. Suction cup on bottom usually held chopper in place satisfactorily on surfaces of porcelain, wood, enamel, glass, linoleum, and a material like *Formica* (unless gristle or other extra tough material was ground), but did not hold on an uneven surface. This chopper was well constructed and was made of "Magaloy" (an aluminum-magnesium alloy) with a good finish. The hopper and cutting plates did not rust when immersed in water overnight. Did a good job of grinding chuck beef into hamburger. The manufacture of these two choppers has been discontinued, and only

one style chopper with a chrome standard and a base of baked enamel, \$13, is now being made. 3

C. Not Recommended

Enterprise No-Clamp Chopper (The Enterprise Mfg. Co. of Pa., Third and Dauphin Sts., Philadelphia 33) \$7 with white, red, or yellow base; \$10 with chrome base. One well-finished, rotating knife and two cutting plates, one for fine grinding and one for coarse grinding. The hopper, knife, and plates showed some signs of rust when immersed in water overnight. The *Enterprise* rocked and "walked" while meat was being ground; otherwise ground meat as well as *Grind-O-Mat*. Must be held down in use (contrary to implications of *No-Clamp* name). 2

Universal Tab-L-Top Food Chopper (Landers, Frary & Clark, 100 Center St., New Britain, Conn.) \$6. Crudely finished cast metal 4-tooth, 10-tooth, and 16-tooth knives and cutting plate. Had hopper which opened for cleaning. The *Universal* was coated with tin on cast iron, but the surface was not nearly so well finished as were the surfaces of the *Grind-O-Mat* and *Enterprise*. The hopper, knives, and plate rusted considerably when immersed in water overnight. Hinged construction of hopper made it difficult to clean completely. Rocked and "walked" while meat was being ground. 2

Oil Additives

THERE are many considerations which people can use in determining whether to spend money on some new or special product which claims great virtues or special values over something which they are used to and which has served their purposes well in the past. There are now many special "oil dopes" ("oil additives," in technicians' language) to be added to the crankcase oil or poured into the gasoline tank of a car (see articles in our June 1950 and September 1951 BULLETINS). An important objection to these dopes is well set forth by T. B. Rendel in the condensation of a paper entitled, *Additives Are Medicine Rather than Cure-All*, which appeared in the *Society of Automotive Engineers Journal* for June 1952.

"When the oil refiner has carefully compounded his various 'drugs' with his base oil [to produce a "premium" or "heavy-duty" oil], it is really quite pointless and sometimes harmful for the operator to add an additional one in the form of a proprietary crankcase or gasoline dope. In 99 out of 100 cases the addition of such dopes is harmless and makes little difference one way or the other, but it is quite possible that the proprietary dope which is added to some additive type of oil could definitely interact with the

additive already blended in the oil and cause some serious increase in engine deposits or even an increase in corrosive effects. . . ."

We are inclined to disagree with the author's comment that "in 99 out of 100 cases the addition of such dopes is harmless," for certainly the chlorinated hydrocarbon or other ingredients of some of the products are such as to suggest that they would have considerable possibilities of harm to the engine. Readers of the article in the September 1951 BULLETIN will recall that some of the materials used in the proprietary additive oils there discussed caused the oil with which they were used to give less satisfactory performance; e.g., increased carbon residue, increase of naphtha insoluble material, increased corrosion tendencies. In a good many cases, these detrimental effects would never be discovered by the user of the products, because he would never be in a position to know the rate at which corrosion would have gone on in his engine *without* the use of a special additive; yet it does seem pointless, as Mr. Rendel indicates, to allow a specialty-product manufacturer to prescribe for one's automobile, when he has not seen it, and is not familiar with its history, or the conditions under which it is used.

Cleaners for Copper and Brass

COPPER AND BRASS articles in the home are not at all easy to keep clean and shiny over a long period. When they are not exposed to water or high heat and are not used to contain foods or beverages, a thin coating of lacquer can be applied to protect them from corrosion. When not covered with a protective coating, copper and brass pieces soon acquire a dull, dark tarnish.

One of the simplest ways to clean copper and brass, but not the easiest, is to use an abrasive. The abrasive, to be suitable, should be sufficiently harsh to remove the tarnish and soil, yet soft enough to do the job without noticeably scratching the surface. The quality of the finish that is obtained depends on the kind of abrasive used. A hard, coarse abrasive will leave noticeable scratches. Whiting or precipitated chalk, which is easily available to the homemaker in hardware and drug stores, will give copper and brass a fine luster. These two are such mild and fine-grained abrasives, however, that polishing with them will be time consuming, and the housewife will therefore be attracted by methods of polishing which work with less physical effort. There is, for example, at least one dip-to-clean silver cleaner, *Instant-Dip*, that was found to clean (but not polish) copper and brass articles easily and quickly. (See the December 1952 CR BUL., page 20.) That cleaner should not be used on steel or iron, however; it should therefore be used with care, if at all, on copper-bottom steel or stainless-steel pans.

A number of polishes contain, besides an abrasive, a chemical which acts with the metallic compounds that form the tarnish. A common chemical cleaner in brass polishes is ammonia or some compound such as the ammonium salts of certain organic acids. Some of the cleaners contain acids which are excellent tarnish removers. Grandmother used an acid, vinegar, and salt to clean the copper and brass in her home. Any cleaner containing an acid must be removed from the metal thoroughly and promptly by flushing with water, for if it is allowed to remain, the acid will react with the metal so that very likely it will look worse than it did before.



Further, the product of the reaction will probably be quite poisonous. Since it is sometimes not practicable to flush with water certain metal objects, such as brass doorknobs and railings, these articles are best polished by use of a plain powdered abrasive used on a slightly dampened soft cloth.

The homemaker should remember that all cleaning methods actually remove a thin film of metal along with the tarnish. On this account, if her housekeeping sense would not be too much offended, she might consider allowing the copper on her copper-bottomed pots to remain discolored, for once the tarnish covers the surface of the copper, it prevents further oxidation and actually protects the metal. If she has an electric stove, the darker color and reduced gloss will improve the efficiency in the use of current by the quicker transmission of heat from an electric heating element of the stove into the utensil.

There are a number of cleaners for copper and brass available to the housewife. Consumers' Research tested three: one a powder, *Samae*; one a liquid suspension, *Copper Brite*; and one a stick, *Cop-R-stik*. The *Cop-R-stik* and *Copper Brite* cleaners listed contained acid; *Samae* contained the salt of an inorganic acid and gave an acid reaction when moistened with water for use. The trade has long realized that one disadvantage of acid cleaners is that housewives commonly regard them as dangerously harmful or corrosive to the skin. Some of the inner tissues of the body can tolerate materials with pH values in the range of 3 to 8; the skin can without

damage stand a somewhat greater range of acidity or alkalinity. (A pH of 7 is neutral, corresponding to pure water.) The cleaners tested had pH values of .05 (very acid) for *Copper Brite*, 1.4 for a water extract of *Cop-R-stik*, and 3.1 for a 1 percent solution of *Samae*. *Copper Brite*, because of the nature of the acid and its extremely low pH, might be hard on the hands. The housewife would be well advised to wear rubber gloves when cleaning with it. Perhaps use of gloves would be advisable with *Cop-R-stik* also. *Samae*, having a less acid reaction, should be unobjectionable in this respect.

A. Recommended

Samae Miracle Cleaner (Copper Clad Products Inc., Newark, N.J.) 12-oz. bottle, 69c. A white powder, packaged in a glass jar with a convenient shaker top. Contained 91% silica abrasive (chiefly 325 mesh [fine]) and 9% ammonium chloride. pH of 1% solution, 3.1. Found convenient to use, and degree of acidity satisfactorily low.

Cop-R-stik (Embree Mfg. Co., Elizabeth 4, N.J.) 3-oz. stick, 49c. A stick of light brown color. Consisted of 49% of a very fine abrasive, probably feldspar, too fine to resolve at a magnification of 430 times, 27% sulfamic acid, 4% carbowax, 7% synthetic detergent, and 10% sodium sulfate. pH of water extract, 1.4, corresponding to very high acidity. Found somewhat inconvenient to use as directed, but gave copper a fine, smooth polish.

B. Intermediate

Copper Brite (Copper Brite, Inc., Los Angeles) 8-fl. oz. bottle, 89c. A white powdered abrasive suspended in a greenish yellow liquid. Contained 28% silica (chiefly finer than 325 mesh), 23% phosphoric acid, 1% methylcellulose, and less than 1% hydrochloric acid, the balance water. pH, 0.05; this cleaner is so strongly acid that it would be undesirable to allow it to be in contact with the hands and CR would recommend that it should preferably be used with rubber gloves. Found convenient to use, and was judged faster in action than the other two cleaners tested.

Roof Gutters

AN interesting and useful 11-page pamphlet titled *Roof Gutters* is one of a series of Construction Aid publications initiated by the Division of Housing Research of the Housing and Home Finance Agency. It is available at the price of 10 cents per copy from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C., and constitutes a guide to the use of alternate materials, rather than the critical metals, and will help readers to reduce costs in roof-gutter construction. The pamphlet contains informative discussions and illustrations concerning varied types of roof gutters — wood, pre-cast concrete,

and the pole type, which uses no metal, in which the roofing material itself is laid over a length of wood (usually a "2 x 4") supported at the correct angle by "cant strips" to form a trough or gutter. There are various suggestions applicable to the individual problems of home owners, whether these pertain to original construction, remodeling, repair, or the addition of roof gutters to completed structures. The pamphlet also contains tables showing the maximum projected roof area for stated diameters of gutters (3 in. to 10 in.) and downspouts (2 in. to 8 in.).

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†Indicates that listings of names or brands are included.

Floor Furnaces—Four Gas- and One Oil-Fired

FLOOR FURNACES are a relatively new kind of furnace especially adapted for installation in small, one-story, basementless homes. The unit is self-contained and is suspended from the floor joists. A single floor register (usually 2 to 2½ feet square) is the only part of the appliance which is visible in the room. In houses where it is desirable to divide the heat between two parts of the house, the furnace can be installed below a partition which separates the two parts of the house, using a special double sloping wall register to deliver the heat to the two adjacent spaces (see Figure 1). In performance, a floor furnace is about the same as the familiar space or parlor heater (since both depend upon gravity flow of warmed air for their action) but is often to be preferred because it does not obtrude so much on the usable space of the rooms.

Unfortunately, with either the floor furnace or space heater, there is a definite limit to the distance to which heat can be effectively distributed without greatly overheating the region close to the heating furnace. According to tests made by the Bureau of Standards, comfortable conditions could not be maintained at a greater distance than 12 to 14 feet from the source of the heat with an outside temperature of 25°F. This would suggest a floor furnace should not be used for houses over 28 feet square unless, of course, there is more than one heater in the house.

There are several important rules which must be followed for a satisfactory installation:

1. Adequate venting to a suitable chimney or stack must be provided. The position of the heater should be such that the flue outlet faces the stack opening, to avoid the restriction to flow caused by an undue number of elbows.
2. If there is any possibility of accumulation of water in the space beneath the floor, a waterproof concrete pit should be constructed under the furnace. As the customary floor furnaces are made from relatively thin sheet steel, exposure to water or extreme dampness for even a short time may cause severe damage.
3. The furnace must be of sufficient capacity to heat the house adequately, and the house itself should be preferably almost square; at least, it

should not have any wings or rooms which are offset greatly from the central portion, as the heat flow into these will be inadequate. The house, too, should be of relatively open design inside so that the warm air can circulate freely from room to room. The attic, or preferably the attic floor, should be insulated to reduce required Btu input and so to enlarge the comfort zone; likewise to help maintain a moderate rather than extreme temperature difference between floor and ceiling of the room.

4. The furnace, unless it is a wall-register model, should not be located closer than 6 inches to the nearest wall, and wall-register models should not be placed closer to a corner than 6 inches. A central location for the furnace is, of course, best, but no attempt should be made to heat through more than one archway or doorway in any direction.

5. The horizontal vent or flue pipe should slope upward at a rate not less than ¼ inch per foot; it should not be over 10 feet long.

6. The furnace must have sufficient air for combustion. In a closed foundation space or basement, an opening of at least twice the free area

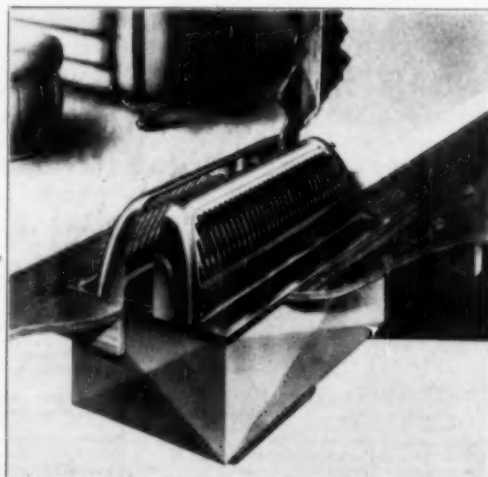
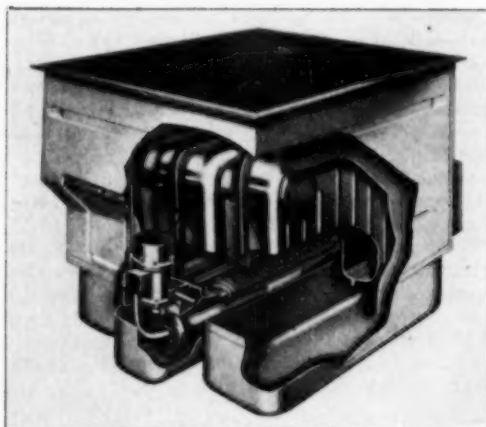


Figure 1 — Coleman Shalloflow Gas Floor Furnace



Duo-Therm Gas Floor Furnace

of the vent collar of the furnace should be provided for entrance of air.

Special Precautions for LP-Gas

The number of floor furnaces using liquefied petroleum gas (bottled gas or propane) has greatly increased over the past few years. Unless correctly installed with a thorough understanding of the special properties of bottled gas, such an installation can present a much greater hazard than one for natural gas or manufactured gas. The principal points are that bottled gas, if there should be a leak, being heavier than air, settles to the lowest point in a cellar or trench where it accumulates, presenting a grave explosion and fire hazard; furthermore, it is difficult to contain within ordinary gas piping, being a solvent of ordinary pipe fitting "dopes" and escaping through joints that are not well threaded that would hold other gases. The Accident Prevention Division of the Association of Casualty and Surety Executives, 60 John St., New York 7, has published an excellent series of safety pamphlets, including Liquefied Petroleum Gas — What it is — How it Acts; and Safe Use of Liquefied Petroleum Gas in Domestic Installations. The plumber is very unlikely to be thoroughly familiar with these safety fundamentals (and a surprising number are installing LP-gas as they would city gas). It is highly recommended that copies of these booklets be secured and that the installer follow their provisions and cautions carefully, and that the work be checked carefully by a competent person to see that they have been followed correctly. National Board of Fire Underwriters, 85 John

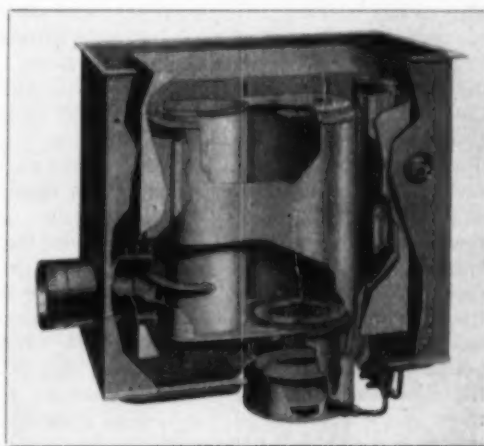
St., New York 38, have issued a pamphlet No. 58 which gives minimum standards for such installations and is thus a "must" on the list of publications determining safety of LP-gas installations.

List Prices

Prices shown in the listings below are without installation in all cases. Installation costs will be found to vary widely as influenced by such factors as local wage rates, need for special venting, alteration of chimneys to secure adequate draft, and possible alteration of the dwelling to accommodate the unit. According to one manufacturer with country-wide experience, installation costs may be expected to lie between \$15 and \$150, with a majority of installations being in the neighborhood of \$50.

Size of Furnaces

While heaters listed below carry manufacturers' ratings up to 50,000 Btu, attempts to distribute heat at a higher rate from a single source may, as has already been noted, result in a seriously uncomfortable difference in temperatures between parts of the house near the heater, and parts that are more remote. Thus, those whose house is of such size or design as to call for the higher heat outputs of the larger models of floor furnaces would do well to consider the advisability of installing two or more smaller units instead of one large unit. Do not purchase any gas-fired unit unless it bears the A.G.A. seal of approval. All the following are so approved.



Coleman Oil Floor Furnace

Gas-Fired Floor Furnaces

A. Recommended

Coleman, Master (The Coleman Co., Inc., Wichita 1, Kans.) Three *Master* models: *30C*, 17,500 Btu output, \$83; *31C*, 24,500 Btu output; and *32C*, 35,000 output. Over-all height, 30-9/16 in., 32-9/16 in., and 32-9/16 in., respectively. Assembly includes automatic safety pilot to shut off gas if pilot fails. Thermostatic controls, including wall thermostat and solenoid gas valve, \$25 to \$35 extra. Dual wall registers (see Figure 1) raise the cost of all floor furnaces \$20 to \$40.

Shalloflow Gas Floor Furnace (The Coleman Co., Inc.) 21-9/16 in. deep from top of floor to bottom of unit. Two sizes: *Model 47A*, 26,900 Btu output; *Model 48*, 35,000 Btu output. Coleman gas furnaces listed comply with Commercial Standard CS-99-42 of the National Bureau of Standards.

Duo-Therm Gas Floor Furnace (Duo-Therm Div., Motor Wheel Corp., Lansing 3, Mich.) Four models: *Model 201*, 24,500 Btu output, \$100; *Model 202*, 35,000 Btu output, \$110; *Model 241*, 28,000 Btu output, \$110; *Model 242*, 42,000 Btu output, \$120. *Models 201* and *202* waterproofed to within 19 in. of floor; *241* and *242*, to within 25½ in. All models available with several types of safety and thermostatic controls including *Duo-Therm All-in-*

One control which combines gas pressure regulator, automatic pilot shutoff, main burner valve, pilot valve, and filter. (This control is furnished at above prices and installed on unit at factory.) Room thermostat control kit, \$23 to \$32 extra. Dual wall register, \$30 extra. All units feature fact that installations require the cutting of only one joist.

Sunbeam, Navaho, Floor Furnace (American Radiator & Standard Sanitary Corp., Pittsburgh 30) Three sizes: *Model SF-25*, 17,500 Btu output; *Model SF-35*, 24,500 Btu output; *Model SF-50*, 35,000 Btu output. Prices not available. The two smaller models may be installed between standard (16-in.) floor joists without cutting. Key for adjusting burner valve removable to prevent tampering by children. Thermostatic control optional at extra cost. Well-designed heat baffles.

Oil-Fired Floor Furnace

B. Intermediate

Coleman Oil Floor Furnace (The Coleman Co., Inc.) Two models: *Model 886*, 30,000 Btu per hr. output, 0.34 gal. oil per hr. on high flame; *Model 888*, 50,000 Btu per hr. output, 0.52 gal. per hr. See Coleman gas-fired furnaces for extra cost of room thermostatic control and wall-type registers. Five-year guarantee.

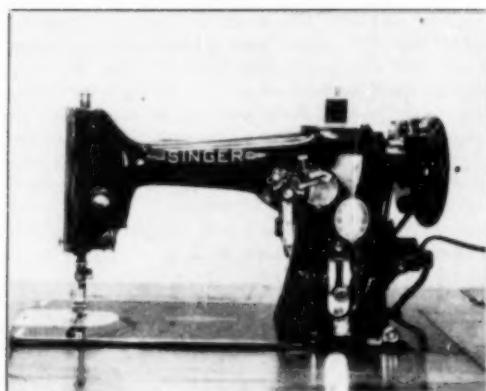
Booklet on Portable Fire Extinguishers

MANY of our subscribers ask about fire extinguishers for home use, and a good many, it seems, have not realized that it is never wise to buy and use any such equipment which has not been approved by the Underwriters' Laboratories or the Engineering Division of the Associated Factory Mutual Fire Insurance Companies. The first thing one should know about a portable fire extinguishing unit is: Is it "listed" by either or both of the above-mentioned organizations? If it is, it is safe to assume as a rule that it is of good type and design, although the Underwriters, of course, or the Factory Mutual engineers cannot be certain that every specimen of a listed appliance made by the manufacturer will come up to proper specifications. Then, too, the fact that the extinguisher has been listed does not mean that it is the right extinguisher for a given purpose, for there is the problem of the *selection of the right type of extinguisher* for the particular fire risk involved, as well as an approved make.

A booklet called NBFU Pamphlet No. 10 — Standards of the National Board of Fire Underwriters for the installation, maintenance and use of First Aid Fire Appliances, as recommended by the National Fire Protection Association, is available to readers who may care to write for it to The National Board of Fire Underwriters, 85 John St., New York 38. This gives a good deal of information about fire extinguishers and their use and the limitations of particular types. The National Board of Fire Underwriters will be pleased to send one copy of this pamphlet without charge to anyone who requests it.

A convenient diagram showing what kinds of extinguishers are suitable for various purposes will be found in CONSUMERS' RESEARCH BULLETIN for January 1947. Trustworthy information on the field of application of the various kinds of extinguishers is given in much greater detail, and with important qualifications and explanations, in the NBFU pamphlet already briefly discussed.

The Singer "Zigzag" Sewing Machine



WHEN Consumers' Research was preparing its last report on sewing machines, it was learned that the Singer Sewing Machine Company which sold a zigzag machine in Europe for a number of years had begun to market one in this country. At that time, the *Singer* zigzag machine was not in general distribution, and it was not possible to include one in the tests reported in our September 1952 issue. The *Singer* zigzag machine, called *Class 206*, and made in Great Britain, has since been obtained and has been given the same series of tests and examinations as were given the six other zigzag sewing machines reported in the September BULLETIN.

The *Singer 206* machine does straight sewing and like other zigzag machines has an adjustment by which the needle can be made to move from side to side as the material being sewed moves forward. The width of the zigzag is changed by shifting a control lever at the top front of the machine. Another lever gives the operator a choice of zigzag stitching along the line of normal sewing or at the left of the line of normal sewing. (Some zigzag machines can have their needles shifted to sew on either side of the normal position.) The instructions for using these controls were judged to be clear and explicit, and the controls were found fairly easy to use. Some zigzag work was difficult

to do, however, because although there was a stop which gave a positive position to the control for the maximum width of the zigzag stitch, there was no stop for the minimum width. Controlling the minimum stitch width in doing some zigzag stitching was made more difficult, according to some operators, because the controls were so located that it was difficult for the operator to rest her arm while adjusting the levers.

Table I — Major Physical Characteristics

Brand and model No.	<i>Singer 206</i>
Color and finish	black; smooth
Weight	head only, 21¼ lb.
Type of mechanism	"full" rotary
Type of drive	V-belt
Position of bobbin	vertical
Tension adjustment	indexed
Sews forward and reverse	yes
Stop to equalize forward and reverse stitches	yes
Hinged presser foot	yes
Control to drop feed	no
Zigzag control	lever on front
No. of positions of needle	2
Maximum width of zigzag stitch	3/16 in.
Switch for light and motor	light only
Rheostat control	knee or foot; smooth

Besides being given service tests, the machine was examined for its engineering and mechanical qualities, including shock hazard and radio interference. Probability of shock hazard developing in the future was judged by a proof-voltage test, which indicates whether the electric insulation is likely to remain effective after a period of service. The machine successfully passed the electrical tests. Radio interference was slight to moderate.

The machine was smoothly finished. CR's engineers, however, objected to the exposed arm on the back of the head, which was not only unsightly but would surely catch dust.

CR has always advised that the buyer of any sewing machine should consider the availability of repair parts and services in making his selection. We believe it should be possible to obtain easily the repair parts for this *Singer* machine from *Singer* dealers, but a prospective purchaser should make specific inquiry from her

own dealer on whether the parts are in stock or easily and promptly available. As to zigzag machines in general, CR suggests that whether or not they are worth the extra cost is a matter for the individual homemaker to decide. Certainly straight stitching will be what a homemaker will use most, and some homemakers may have little real need for the extra facilities afforded by the new zigzag machines.

B. Intermediate

Singer, Class 206 (Singer Sewing Machine Co., Singer Bldg., 149 Broadway, New York 6) \$238 to \$313. Bobbin could be inserted only by lifting head. Zigzag control judged fairly easy to use and it had an adjustable stop to limit the maximum width of the zigzag but not the minimum. Needle had only two positions — center and left of center — not three, as on some other zigzag machines. Shielding of rheostat control for safety, good. Light was difficult to replace.

Off the Editor's Chest

(Continued from page 2)

a heavy load of lamps or other appliances. To replace the blown fuse involves knowing the location of the fuse box; opening the main house current switch so that the current will be cut off throughout the house; disconnecting all the appliances that might be on that line, removing the blown fuse, and putting in another of the correct size; closing the main switch. The appliances should not be plugged in again until the cause of the trouble has been determined with certainty. All this can provide a useful topic for an evening's lesson and demonstration. At one big appliance conference in New York this past year, one dealer made the point that a considerable number of his service calls involved nothing more than a fuse that had blown out. Women were often indignant at the charge made, but frequently it turned out they didn't even know where the fuse box was located, and a serviceman might be obliged to put in some time looking for it.

Dripping faucets that waste hot water can be fixed quickly and easily by the woman with know-how. Washing machines will operate more satisfactorily if they are not overloaded, the intake hoses are tight, and there are no kinks in the drain hose. Washing machines need to be cleaned, too, just as the careful homemaker cleans the bathtub and bowl. There are an almost infinite number of small items of home

maintenance and repair that would provide as many evenings of instruction as can be arranged for, with profit to the homemaker who attends.

In rural sections of the country it is the custom for home demonstration agents and agricultural extension workers to put on "workshops" at periodic intervals at which specific topics such as care and repair of sewing machines, proper preparation of food for the home freezer, use of an ironer or dryer, and similar matters are demonstrated and discussed. The city woman, who often has no expert advisory service to call on, should certainly be able to look to her school system's adult education courses for such aid. The problem of obtaining lecturers might be solved in part by asking the big appliance manufacturers to send qualified home economists to lecture on the problems encountered by women with particular appliances. It is known, for example, that pressure cookers may be ruined if women use their electric mixers to whip potatoes in them and bang the beater sharply on the edge to get the potatoes off. The edge is marred and the seal ruined. Steam irons as a rule will give trouble if distilled or specially purified water is not used, and automatic toasters may give trouble if a fork is used to remove toast slices at a certain stage of browning.

These and many more little problems in operating the household appliances are known to the

home economics departments of alert manufacturers. No doubt the men and women who have to deal with problems of proper operation, servicing, and repair would be glad for an opportunity to pass along some of their know-how. This will be an advantage to the manufacturer, too, for homemakers are more kindly disposed to a manufacturer when they are able to avoid unnecessary and costly visits of repairmen and annoying periods during which the appliance is out of use — through a better knowledge of the characteristics and possible troubles of appliances and their servicing.

It is commonly agreed that homemakers do not read instruction books, and perhaps a series of meetings under the auspices of the local adult education committee would give women a chance to learn orally and by demonstration what they have overlooked or discarded or were unable to understand. Adult education would in this manner contribute to an improvement in the efficiency and comfort of home management, not to mention greater economy in use of household funds, and better relations between the manufacturers, their dealers, and their customers.

Snow Plow

B. Intermediate

Toro Snow Hound (Toro Mfg. Co., Minneapolis 6)
\$160.

Description:

A small snow-removing device of the snow-throwing type, clearing a 17-in. path. Unit was not self-propelled. Rotor consisting of 4 helical blades was chain driven; countershaft was driven by a V-belt. Simple V-belt tightener served as clutch to disengage rotor. Had one 8-in. diameter semi-pneumatic tire in rear and two thin-steel 8-in. diameter disk wheels (about 3/16 in. thick) — one each side of rotor. Chute could be readily and quickly moved to throw snow to either side. Clearance of bottom of the chute from ground, which determines thickness of layer of snow not removed, adjustable from 0 to 1 1/4 in. Engine, 4 cycle, Briggs & Stratton 2 1/2 hp.

Performance:

Motor was easy to start and appeared to have ample power. On level cement and macadam walks, machine worked well, throwing freshly fallen snow from 8 to 10 ft. It also worked well on snow that had been piled up by shoveling, to a depth of about 15 in. On inclined (up hill) walks, unit was somewhat difficult to operate because of the effort required to push it, as operator was at times unable to obtain sufficient foothold to push the machine into the snow. Performance on turf (not frozen) and on loose gravel walks and driveways was poor, because the thin steel disk wheels sank into ground, causing mouth of chute to dig in. With a very limited test on heavy wet snow, the chute plugged up and had to be cleared before operation could be resumed. This appliance is advertised to clear snow as deep as 16 in., but a snow of that depth had not yet fallen at the place where the device was tested; on that account the correctness of this claim has not been checked although, as previously stated, no difficulty was experienced in removing light snow piled up to a depth

of 15 in. Rotor blades were not guarded; thus care would have to be exercised to prevent an accident through someone's slipping and falling into the revolving rotor.

Conclusions:

Considered a good unit for those home owners who for reasons of health must forego or reduce physical effort (but see preceding comment regarding use of the appliance on an incline) or who must clear walks or drives in a minimum of time. One should also consider whether he can afford to invest \$160 for a single-purpose appliance which, in many areas, may be used only a few times in an average winter.



Toro Snow Hound

Misleading Advertising of Hearing Aids

BY PERCIVAL WILDE

SINCE the hearing aid industry is highly competitive, it is perhaps not surprising that exaggerated advertising claims are made to persuade the public to buy some particular brand. Indeed, one gathers the impression that many manufacturers vie with one another in inventing miracles which can be accomplished by instruments which they, and only they, offer for sale. At periodic intervals the Federal Trade Commission takes action, and on June 14, 1952, and July 22, 1952, the Commission announced the results of proceedings against seven companies for misleading advertising claims which had been settled when the concerns in question agreed to discontinue the objectionable claims.

The concerns involved were the Microtone and Maico Companies, the Beltone Hearing Aid Company, the Sonotone Corporation, and Otation, American Sound Products, and Dictograph Products, Inc. All of them agreed to stop using such phrases as "even close friends won't know you're wearing a hearing aid," "completely out of sight," and "nobody knows you're deaf." The advertisers also agreed to refrain from claiming that their devices required less equipment than all parts essential to their function.

Microtone agreed to discontinue a claim that its "Lifetime Service Policy" insures the devices against all service expense incident to the maintenance thereof, though the trade name, "Lifetime," may be used if "accompanied by a statement, equally conspicuous, to the effect that component parts of said devices may become defective and that replacement thereof after one year has expired will be made only at the expense of the purchaser." The company agreed, also, to cease representing "that a greater over-all economy is effected by purchasing said devices than by purchasing a competitive device at a price of \$75."

Maico agreed to discontinue the claim "that its hearing aid is a 'revolutionary invention,'" as well as "the use of such words, terms and phrases as 'conceal your secret,' 'hidden hearing,'

and 'no one will ever guess you wear a hearing aid.'"

Beltone accepted a stipulation containing eleven items, and agreed to cease "from disseminating or causing to be disseminated, any advertisement . . . which represents directly or by implication

"(1) The sizes or weights of their hearing aid devices not in accordance with the facts;

"(4) That their hearing aid devices give 'full-tone hearing' or the 'richest' or 'clearest' hearing. . .

"(6) That. . . [they] will enable the hopelessly deaf to hear again;

"(7) That. . . [they] embody new or different electronic principles. . .

"(9) That by means of their hearing aid devices, a user can prevent his hearing loss from becoming progressively worse."

Sonotone agreed to discontinue claiming, "In connection with its 'Noband' receiver, that there is no button or receiver in the ear, unless it is clearly disclosed that the bone conduction receiver is worn behind the ear," or "that the 'Movable Ear' constitutes the entire apparatus of its hearing aid devices."

Otation agreed to cease claiming "That its hearing aid devices are only half the size of most hearing aid devices," or "That the content of gold or silver in its hearing aid devices is greater than is actually the fact."

American Sound Products agreed to stop claiming "that any device which is not completely concealed when worn by any user is invisible," and to cease "the use of depictions" which represent "that its hearing aid devices are smaller or more powerful than all other hearing aid devices."

Dictograph Products agreed to discontinue claims that its "devices designated 'Wrist-Ear' and 'Super-X-Ear' employ a new or different principle which provides hearing aid without any equipment other than that worn on the wrist," or that they "Duplicate the functions of the human ear, or duplicate nature's way to

hear," or "Enable one to hear again regardless of the cause of impaired hearing." The company agreed, also, to cease advertising "That it conducts 'hearing clinics,' " or "That it conducts a 'public education department.' "

The Federal Trade Commission was undoubtedly on sound ground when it held that Dictograph was using misleading advertising in referring to its "free hearing clinics." At a clinic a caller would look for impartial advice, as well as an opportunity to compare various makes of aids. Instead he would have found half a dozen models of the *Acousticon*, made by Dictograph, ranging in price from \$69.50 to \$200, and it is at least open to question if the \$69.50 aid is not in a class defined by the National Better Business Bureau as "bait advertising": "A particular model. . . [advertised]. . . for the purpose or with the effect of inducing prospective customers to visit the salesrooms so that they may be switched to and sold an entirely different model."

Despite the fact that the stipulation referred to was entered into last June, the mails, as recently as October 1952, carried Dictograph advertising matter announcing that "There will be a Special Hearing Aid Clinic held in your locality before Oct. 31. . . Acousticon experts will be in attendance." At the same time appeared the pamphlets distributed by Acousticon International entitled *U. S. Government Exposé of Hearing Aids / Based on the Greatest Clinical Study of Deafness Ever Made*. This exposé had reference to bulletins issued by the National Health Survey (U. S. Public Health Service) in 1935-1936 (a period much antedating even the earliest electronic hearing aids), a paper read before the Society of Motion Picture Engineers (published in their organ for July 1940), and an article in the *Laryngoscope* for September 1940. The last two are in no way government sponsored. The pamphlet uses the phrase "The Government's Findings" and "The Government's Recommendations," though they are not to be found in any government publication, and it sums up, as a governmental finding, an endorsement of a variation of the fitting system with which *Acousticon* has long been identified:

Each hard of hearing person must be given a hearing aid that corrects his particular kind or pattern of hearing loss, in much the same way that his eyeglasses correct his specific visual defect.

The reader may compare this "finding" with another in the Harvard Report, completed in 1946 under a contract between the Office of Research and Inventions, U. S. Navy, and Harvard University:

For the usual hard-of-hearing patient any detailed "fitting" is wasteful of time and effort. The differentials between instruments that are indicated by most current tests are largely illusory.

Dr. I. J. Hirsh, of the Harvard Psycho-Acoustic Laboratory, went farther in 1948:

I do not know of any eyeglasses made to supply more light to the eye, while the hearing aid's sole function is to supply more sound to the ear.

Some manufacturers endorse battery recharging, a practice which, if successful, would greatly reduce operating costs, though it is not clear how Microtone, which recommends and sells a battery charger for an extra \$25, would thereby achieve "a greater over-all economy" than some other aid whose wearers might similarly resort to recharging, but better informed engineers point out that the walls of the miniature dry cells used in hearing aids are so thin that they perforate quickly, and that recharging does not mend holes in cases. The primary cell produces current by actually destroying its negative element (unlike the automobile battery, in which a reversible transfer of chemicals takes place). P. R. Mallory Co., the largest manufacturer of miniature mercury cells, prints on the containers in which they are packed, "Do not charge this battery. To do so may lead to injury or damage." The leakage of electrolyte from zinc-carbon cells brings into contact with the interior of the hearing aid a fluid which is corrosively destructive to metals; a similar leakage from mercury cells may bring poisonous mercury salts into contact with the human skin.

The "printed circuit," which, according to *New Weapons for Air Warfare*, edited by Joseph C. Boyce, published by Little, Brown & Co., Boston, 1947, was originally the idea of Dr. Alexander Ellett of the Globe Union Company of Milwaukee, and which was jointly developed by that company and the Ordnance Development Division of the National Bureau of Standards, substitutes silver ink for wires, carbon ink for resistors, and achieves amazing "miniaturization." That such a circuit is not a cure-all is suggested by the fact that, though it is played up by some advertisers, a number of leading manufacturers have experimented with it and have decided against it; but it is used, at the moment, in many instruments, and any person who wishes to market his own proprietary brand may buy the circuits ready-made from prime manufacturers. It is, however, not a novelty after so many years, though its silver-ink wiring — much less than a dime's worth of silver per instrument — has supplied ammunition to advertisers who trumpet the expensive-sounding "silver circuit."

All of the Federal Trade Commission stipulations touch on an angle of surpassing importance. For decades vanity prevented many women from wearing glasses, even when they could not safely cross streets without them. A similar vanity, even an embarrassment, when there should be neither, is today preventing thousands from wearing the aids which would make life happier both for themselves and for their friends — and is capitalized by advertisers who represent the visible as invisible. Manufacturers who stress an embarrassment which should not exist, and who grasp at a near-invisibility which cannot be carried beyond definite limits without sacrificing performance, are rendering a disservice to the public. Instead of printing, "even close friends won't know you're wearing a hearing aid," thought should be given to the plight of millions of school children who are considered backward solely because they do not hear well, and whose misinformed parents actually object to the aids which are so clearly necessary. It is not so long ago that any young-

ster who wore glasses was nicknamed "Four Eyes," and had his life made miserable. Today nothing is thought of the wearing of glasses, and Harold Lloyd, famous motion picture actor, did much to popularize them. Indeed, they have been made so attractive that some women wear dark glasses to achieve a touch of Hollywood glamor.

The wearing of hearing aids by thousands of young veterans has done much to make their use more general and to spread the thought that impaired hearing, being neither a shameful affliction nor the hallmark of old age, should not be given the silent treatment. In a recent motion picture the villain, who admitted that he could hear a pin drop, wore a hearing aid because he felt it made him look distinguished. If the buying public will cease considering the use of an aid as something to be disguised, advertisers will cease using such an approach, and the instruments will be re-evaluated for what they are: a scientific product of electronics.

Problems of Night Driving

Windshields, "Night-Driving" Glasses, Shields for Controlling Glare

NIGHT DRIVING against the glare of headlights of approaching vehicles remains a serious problem, notwithstanding improvements in headlamps. Glaring headlights of approaching vehicles are considered to be one of the most dangerous incidents of night driving, especially in bad weather or when the road surface is unfavorable. For driving at today's high speeds, the road must be lighted a considerable distance ahead; therefore, on all but the best-lighted highways, the "driving beam" of the approaching vehicle is bound to project glare into the eyes. When the driver of the approaching car does not switch to the "passing beam," or does not do so soon enough, the driver traveling in the opposite direction is temporarily blinded. In spite of improvements in highways and highway lighting, the problem remains of reducing glare of approaching headlamps, particularly on unlighted or poorly-lighted narrow highways.

The best opinion available indicates that the colored windshield is *not* a good expedient to reduce the glare of oncoming headlamps; this was noted in a discussion of tinted glass

as used in automobiles in CR's August 1952 BULLETIN. Useful protection of the eyes from strong sunlight glare cannot be effectively provided by the lightly tinted windshield glass which is in use. The Bureau of Standards has said, in discussing tinted spectacle lenses, that "only the darkest shades of tinted lenses can shield the eye from the intense glare of visible radiation." If the light-transmitting qualities of the windshield glass should be reduced sufficiently to decrease effectively the glare from automobile headlights at night, the effect would be to reduce the degree of visibility of objects and obstacles along the highway; thus the visibilities of *all* objects which are only dimly visible at night would be reduced still further and many objects would thus be brought below the threshold of perception. It must be borne in mind that many accidents are caused by a deficiency in visibility which may be very slight. The margin of difference between safety and danger under some road and weather conditions may be so small that it would be foolish to allow any avoidable worsening of customary designs of

windows and windshields — already bad in a number of respects — to whittle away the narrow borderland between safe driving and possible death from collision or other danger. As it happens, the light transmission through windshields must not be less than 70 percent by state regulation, and this is barely exceeded by the tinted glass now being used, whereas the clear windshield "safety glass" passes nearly 90 percent of the available light at night.

Any extraneous light falling on the eyes of the driver reduces visual efficiency in night driving — even turning on a dome light may cause a motorist to lose his sense of direction with respect to movement of the vehicle; instrument lights on the dashboard should be kept at the lowest practicable level of illumination, or turned off, when driving conditions are particularly hazardous.

Glasses for Night Driving

Special glasses for night driving are not recommended. The point regarding the light-transmitting qualities of the windshield glass also applies to the wearing of sunglasses or other light-absorptive glasses for night driving, though many have offered such glasses as a cure for the glare difficulties arising from oncoming bright headlights. If the glasses are dense enough, they will greatly reduce the visibility of all things that must be seen at night; if they are tinted only and do not absorb much light, they do not effectively reduce the glare. There is no magic in any tint or color! No light-filtering device placed before the eyes, either as glasses or in a windshield, can improve vision at low levels of illumination. Tests have shown, on the contrary, that the effect is harmful rather than helpful. Readers should bear this in mind and tell others who have been misled by the persuasive advertising that is seen in newspapers and magazines and heard over the radio urging consumers to buy tinted glasses for driving at night in order to avoid the hazard of "headlight blindness." Promoters of these glasses customarily allege that they filter out the glare from headlights in the same way that sunglasses filter out the rays of the sun, which is quite misleading. Some even assert that the present use of tinted-glass windshields is proof that the automobile manufacturers recognize as sound the principle of using tinted spectacles for night driving, which is likewise contrary to the facts. It seems likely indeed that the promoters of tinted spectacles may be responsible for an increase in accidents rather than for rendering night-driving accidents less likely.

According to a trade journal article, colored

glasses for night driving have been recently criticized by the American Association of Motor Vehicles Administrators, which also objects to bug deflectors that are large enough to cause interference with motorists' vision.

A joint committee of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology has recently issued a report on Tinted Optical Media, signed by members of a subcommittee which was set up to study the problem of "filter lenses," and to clarify the basic principles involved. The report says, "This Sub-Committee does not believe that acuity [visual] can be appreciably improved by the wearing of any tinted lenses and is not aware of any accepted study which supports such a thesis." It also condemns the use of any type of night-driving glasses, which, regardless of whether colored, reflecting, or polarizing, render the task of seeing at night more difficult because they reduce the total light reaching the eye. Readers should remember that the night-driving glasses reduce the brightness and visibility of the entire visual field and cannot act selectively against the glare of the headlights. The committee likewise takes objection to the use of colored windshields, and it believes that the use of tinted lenses in general for daylight wear is objectionable except where prescribed by a qualified medical adviser, though it finds very mildly tinted lenses unobjectionable if the patient desires them and can afford the additional cost. It is emphasized, however, that "they do not offer physiologic advantage over crown [ordinary] glass for use under fluorescent or other lighting situations." There is a special warning against the inadvertent wearing of sunglasses at dusk which is considered to imply a dangerous hazard in driving on the highways. Sunglasses should not be regularly worn indoors unless for a special reason connected with "definite ocular pathologic processes." For outdoor use the committee suggests that a "visor or broad-brimmed hat is a more effective shield and will frequently obviate the necessity for such glasses."

A Navy publication, *The Safety Review*, in discussing the report of this committee, says the case against tinted sunglasses has been waged for years by naval personnel.

Experiments at Iowa State College

A study of night driving glasses carried out by four well-qualified experts at Iowa State College, in cooperation with the Committee on Motor Vision of the American Optometric Association, reported as a conclusion that a filtering lens or other media reduces the acuteness

of vision where the illumination is at a low level, in relation to (but not in actual proportion to) the transmission factor of the glass. Though there are some subjective impressions that the blinding effect of oncoming headlights is reduced, there is an actual loss in visual acuity. If the matter were to be decided entirely by the opinion of those using the glasses, there would be a considerable majority in favor of their use. Because of these factors, experiments were laid out to eliminate the bias of the observer. There were *losses of acuity of vision* in all cases except two; in those, there was no effect noted, using four observers. In all cases, light blue and yellow filters were used.

The authors recommend that seeing efficiency should not be impaired by the use of colored glasses or other means of reducing the amount of light reaching the driver's eyes in night driving, because of the hazard arising from insufficient illumination of the road or objects on or near the road.

Possible Aid to "Glare Control"

In an effort to offer some constructive information, CR has given careful study to this problem. Two consultants, one an expert on physiological optics, suggest that a practicable solution is to use a dense absorbing glass or plastic of relatively small area located on the correct part of the windshield or on an adjustable bracket to the left of the normal line of sight. When necessary, the driver can adjust the position of his head in relation to this small piece of absorptive material so that it eclipses the approaching headlights, while the remainder of his visual field remains unchanged. At the same time he can keep his eyes on the roadway in front where the visibility of important objects is not affected by the absorbing screen of relatively small area. One adviser suggests that, if the light-absorbing medium is located between the windshield and the driver's eyes, its horizontal dimension should be at least 6 inches and its height about 4 inches. Its location in a vertical direction depends upon the height and driving position of the driver; it is determined by the actual position of the driver's eyes when he is in his normal driving position.

The solution is a simple one though by no means entirely satisfactory, but what is needed is an "eyeshade," in the proper place, that does not reduce the visibility of the edge of the pavement and other objects which at best are hard to see at night. The use of this means of protecting the eyes is comparable to the action one takes in shielding the eyes by the hand on an outstretched arm. Ballplayers do exactly

this when catching a "fly" with the ball between them and the sun.

One consultant advises that a visor or color screen along the top of the windshield and one along the lower edge, leaving a wide slot for adequate vision, gives a workable arrangement. With the lower edge of the top absorbing screen in the right position, it is possible to raise the level of the eyes while driving and to look through this screen when a car with glaring lights approaches, until it is close at hand. (The "visor" here does not mean one of the projecting gadgets of the kind that block off one's ability to see overhead traffic lights.)

Some will have noted peculiar streaks or ribbons of light, either straight or curved, on the windshield emanating from the images of lights arranged in a row along the highway and ending somewhere near the center of motion of the windshield-wiper arm. These seem to be worse at times in rainy weather, possibly due to the presence of a reflective surface added by a film of water in addition to the six reflecting surfaces already present in the "sandwich glass." Some people have not noticed these light streaks; others find them most annoying. We shall be glad to receive information from engineers or scientists who may have observed the phenomenon and wish to comment upon it, particularly as to its exact causation and its relationship to the curvature and slope of the windshield, and to the position of lights on or along the road causing the images. There seems little doubt that the streaks of light are associated with the windshield wiper in some way, since the streaks observed seem to converge toward the center of the wiper's motion; one observer has suggested that the effect is the result of minute scratches made in windshield glass by the motion of the wiper blade. As they seem to be worse when there is rain on the windshield, it is a possibility that uneven thicknesses of the water film on the windshield produced by the wiper blade are an element in the problem.

While the ideal configuration for the windshield would be a circular one with the driver's eyes at the center of curvature, the deviation of images caused by the slope of the windshield is probably too small to be an important consideration. When road vision is particularly bad because of weather conditions, the driver can pull the seat forward or by use of a pillow behind his back put his eyes as close as possible to the glass. While this interferes somewhat with the most favorable action of feet and knees in respect to pedal operation, it is perhaps the lesser of two evils in weather and road conditions calling for extra care in driving.

1953 Dodge Automobile

A- (B+ with Gyro-Torque) (Tentative)

Dodge Coronet V-8. \$2483 delivered N.Y.C. *Gyro-Torque* transmission, \$217; radio, \$101; tinted glass,¹ \$20.

MAJOR SPECIFICATIONS

Engine, etc.

No. of cylinders: 8
Valves: overhead, hydraulic
Bore and stroke: 3-7/16 x 3-1/4
Piston displacement: 241.3 cu. in.
Rated brake hp.: 140 at 4400 rpm.
Taxable hp.: 37.8
Compression ratio: 7.1 to 1
Choke: automatic
Battery: 105 amp.-hr.
Oil capacity: 5 qt.²
Cooling system: 19-qt. pressure type
Gasoline tank: 17 gal.
Windshield wipers: 2-speed electric

Chassis, etc.

Wheelbase: 119 in.
Over-all length: 201 1/2 in.
Width: 73 1/2 in.
Height: 63 3/4 in.
Gear ratio: 3.73 to 1 (3.54 to 1 with semiautomatic transmission)
Tire size: 7.10 x 15 (adequate)
Brake area: 173 1/2 sq. in.
Brake factor: 42 (satisfactory)
Type of frame: box
Minimum road clearance: 7 3/8 in.
Shipping weight: 3365 lb.
Percent weight on front: 56% (less favorable than average for today's cars)
Turning diameter: 41 ft. 4 in. (about average)

COMMENTS:

The car tested was equipped with *Gyro-Torque* (a semiautomatic drive), to be discussed later. Engine was somewhat noisy. Steering factor, 4.2 (about normal for today's cars). Hand brake operated on drive shaft, which is open to certain objections (considered inadequate for an emergency stop, if needed in case of failure of the regular hydraulic 4-wheel brakes). Car had ample room except that headroom was not sufficient for a tall person wearing a hat. Interior light turned on by the opening only of the doors on right-hand side of the car. Only one



back-up light used; this was located at the right rear of the car where it was of little value to driver. Fresh-air inlet for heater located at top of cowl (very desirable). Defroster was very noisy in operation at high fan speed. Front fenders bolted; rear fenders welded. Vision over hood, very good; to rear, very good. Spare tire readily accessible, and trunk space was adequate. Starter operated by turning ignition key to right with gear lever in neutral. There were three different keys, one for ignition and front doors, one for trunk, and one for glove compartment. As a matter of convenience, CR considers a single key for all locks on a car as much to be preferred. Wheels and tires were readily accessible for servicing.

ROAD TEST DATA AND OBSERVATIONS

Speedometer errors:

at indicated speed of 20 m.p.h., correct; at indicated speed of 35 m.p.h., actual speed 34.5 m.p.h.; at 50 m.p.h., 48.

Acceleration:

from 0 to 30 m.p.h., 6.6 sec., good;
from 20 to 50 m.p.h., 10.0 sec., good;
from 40 to 60 m.p.h., 8.4 sec., good.

Gasoline mileage under test conditions: at 30 m.p.h., 20.8 m.p.g.; at 50 m.p.h., 17.8 m.p.g.

Riding comfort:

This was judged very good at both high and low speeds. Cornering ability, good.

Gyro-Torque:

This drive retains the clutch pedal which is used in changing from or to, reverse, power range, and drive range. With gear shift in drive range, car is started in third gear and changes to fourth gear by letting up on the accelerator briefly at speeds above 14 m.p.h. At speeds below 45 m.p.h., pushing accelerator to floor ("kicking down") should shift

¹On the undesirability, in general, of tinted glass in automobile windshields and windows, see pages 20-22 of this issue.

²13 qt. on cars with *Gyro-Torque* drive. (Same oil is used for crankcase and torque converter.)

down from fourth to third gear for better acceleration. In CR's tests transmission failed to kick down on several occasions, which could constitute a serious hazard to a driver in a tight situation; however, it was found that the defect on CR's car was a matter of a simple, easily corrected adjustment. (Purchasers of this car should check that this fault is not present, and be on guard lest it develop in future use of the car.) At speeds above about 45 m.p.h., transmission could not be kicked down to third gear. This provision in the design is desirable, to prevent damage to the engine by overspeeding. The user

should be careful not to attempt to drive at high speeds in the kick down or third gear; ample acceleration is available in fourth gear at a lower (and safe) engine speed. This transmission is considered by CR to be less desirable than the fully automatic transmissions. Hill climbing under icy road conditions not fully satisfactory, but car performed well on slippery level roads.

*Heater capacity judged insufficient; both heater and defrosters were found to be inadequate when outside temperature was only moderately below freezing. Estimated depreciation, high.

A Car Can Run Without Oil — For a Time

FROM time to time, people write in to Consumers' Research to explain that some new or newly promoted automobile oil additive, or new crankcase oil, must be a wonderful product worthy of our recommendation, because when it was used in a demonstration and the crankcase was then drained, the car was driven a number of miles at 50 miles per hour, without damage to the engine.

This stunt could be performed with almost any good oil; it might even be that the 50-mile speed would be safer than a slow speed in avoiding undesirable effects from the lack of a proper amount of oil in the crankcase. There are several considerations involved. When oil is drained from the crankcase in the usual manner, about one pint to one quart remains in the engine. This is caught in the drilled passages of the crankshaft, in the valve chamber, and on the crankcase walls. If the car is equipped with an oil filter, an additional amount will remain in that. (Even if the engine were to be run with the drain plug removed, not all the oil would leave the crankcase.)

If the engine is run after the oil has been drained in the ordinary way, the oil remaining in the crankcase is thrown about violently by the motion of the connecting rods and the amount available is sufficient to lubricate the cylinder walls for a fair length of time. Little if any trouble would be experienced with the crankshaft or crankpin bearings if the car is one which has been well broken in; neither would damage to rings occur until they give warning — usually by a squeaking sound.

Another variant of this trick demonstration is to add a quantity of some fancy and high-priced additive to the oil in the crankcase, then to drain

the oil from the crankcase; then the case is filled to the normal level with water and the car is driven a considerable distance. The water acts both as a carrier for the oil and as a lubricant, and helps to carry the small amount of residual oil in the crankcase to cylinder walls and bearings.

In general, the various oil additives are not desirable products from the consumer's standpoint, but they are usually very good from a salesman's standpoint in that they provide a very convincing demonstration that whatever has been added to the oil is somehow a marvelous substance *simply because the layman does not realize that every such experiment requires a "control" or reference standard in which the same process is run through, completely, without use of the substance being tested.*

It happens that one of CR's consultants was asked some time ago to check a car which through error had been driven away and had traveled about 23 miles without replacement of oil in the crankcase after oil had been drained out at a filling station. (Through an error of the filling station, 10W oil had been taken out and the intended addition of 20W oil was not carried out.) While both the filling-station operator and the car owner were sure that severe damage had been done to the engine, actually none was found on careful engineering inspection. The only undesirable result was that the water in the radiator was boiling at the end of the 23-mile trip. The car was a relatively new 1949 model in the Chevrolet-Plymouth-Ford class with about 3000 miles on its odometer. There was not the slightest evidence of damage to cylinder walls or rings, nor was there any wear on the rings sufficient to cause smoking or excessive oil consumption thereafter.

WATER SOFTENING

THE AMERICAN PEOPLE are becoming more and more conscious of water, and not only desire to have it available in generous quantities, but also wish it to be soft, and as free as possible from mineral content, discoloration, flocculent material, and odor. This widespread interest has created a constant demand for more and better water for use in the home. Every natural water supply contains impurities, and the kinds and amounts of such impurities are governed by the environment through which the water passes. Rain water, of course, is soft, since it contains only dissolved gases, mainly oxygen and carbon dioxide, which it has dissolved in its passage through the air. When this water flows over or through the ground, it dissolves more substances, minerals or salts, which change it to "hard" water. The salts taken up depend on the nature of the soil, but generally they consist largely of calcium with lesser amounts of magnesium, in the form of bicarbonates, carbonates, and sulfates.

Water containing in solution the bicarbonates, carbonates, or sulfates of calcium or magnesium will not form a lather with soap until sufficient soap has been used to precipitate the calcium and magnesium as a curd. This condition, of course, results in the waste of soap, and in other troubles, such as unsightly deposits on the clothes. When hard water is boiled, the bicarbonates are decomposed, with evolution of carbon dioxide and precipitation of calcium carbonate. Boiling, however, has no effect on dissolved sulfates. Hardness due to calcium bicarbonate is termed "temporary" hardness, and that due to sulfates is termed permanent. Hardness is usually reported in grains of calcium carbonate per gallon of water or in parts per million of calcium carbonate (1 grain of calcium carbonate per gallon is equivalent to 17 parts per million of hardness).

The removal of calcium and magnesium from hard water is known as softening. While iron is not generally considered a constituent of hard water, it is present in many waters and is capable of forming insoluble iron soaps. As little as one part in three million (0.3 ppm.) of iron in the

water supply can cause objectionable staining of plumbing fixtures and fabrics.

In the home, the most important process for softening water is the ion exchange system. An ion exchange material (commonly referred to as zeolite) is a material that does not dissolve in water but has the property of exchanging ions of some of the compounds dissolved in water, namely calcium and magnesium, for ions which it contains, namely those of sodium. When hard water is passed through a bed of the material, the calcium and magnesium ions are removed from the water and are replaced by sodium from the bed. Eventually this material becomes exhausted of sodium ions, and the water is no longer effectively softened; the softening material is then treated, or regenerated, with a solution of ordinary salt and the reverse reaction occurs; the sodium ions are removed from the brine and restored to the bed of softening material, and the calcium and magnesium ions present in the bed are washed away.

Although the term zeolite, when strictly applied, refers to a group of *naturally* occurring minerals having the property of ion exchange, all ion exchanging materials, including the *synthetic* materials, are frequently described as zeolites. Included in this group also are the newer ion exchange *resins* which are becoming more popular for use in the home.

The water-softening tank, measuring approximately 9 to 28 inches in diameter and 44 to 69 inches high, depending on the type and capacity of material to soften water, is installed in the incoming water line. In operation, the hard water enters the tank, flows through the zeolite bed, and comes out as soft water. The zeolite material is not appreciably impaired and can be used for many years by regularly restoring it to full effectiveness by contact with brine. The frequency of regeneration will depend on the capacity of the softener, the amount of water used in the household, and the hardness of the water. Assuming the water hardness is 10 grains per gallon, a unit with capacity of 25,000 grains will provide about 2500 gallons of softened water before regeneration is necessary.

Any softening system must be purchased to meet the requirements of the place where it is to be used, and no recommendation can be made here which will apply to all home conditions. However, certain steps should be followed in the selection of the correct unit for your particular use. Your water should be tested first; this can be done through your state university or by one of the manufacturers of water-softening equipment who offer a free water-analysis service. This enables the manufacturer to determine what type of zeolite to use and what conditioning beyond softening, if any, may be needed. Then, with the help of your local plumbing contractor or other merchant, the size of the unit must be decided. It is advisable to select

the capacity of the unit on the basis of the hardness of the water and on a water consumption of 25 gallons a day for each person in the house (this does not include the water for closets, to which untreated water is piped as a rule, or for sprinkling garden or lawn). A very simple and inexpensive, but rough, method for anyone who wishes to test his water supply for hardness is as follows:

1. For water-hardness test, get a small bottle of tincture of green soap solution from the drug-store.
2. Fill a one-ounce bottle half full of a sample taken from your water supply.
3. Add soap solution a drop at a time until rich suds appear upon shaking. Record the number of drops used.
4. Multiply number of drops needed to produce rich suds by 2.5. This will give the approximate hardness of the water in grains per gallon.

The above method appeared in two articles on water softening in *Successful Farming* (September 1947, May 1950).

In various sections of the country, Culligan Soft Water Service dealers will furnish softener equipment, and at regular intervals, about monthly, remove the used unit and replace it with a fresh one. The charge for this service will run about \$3 a month for the average family. The service, in addition to doing away with the necessity of paying at one time relatively high cost of the equipment, saves the householder the task of regenerating the zeolite. In contrast, some dealers, operating more or less on a local basis, will install a softener in the home for a fixed rental fee per month, with the customer responsible for regenerating the unit when this is needed.

The advantages of a water-softening system, especially in extremely hard-water areas, are greater than the disadvantages. In its favor are such things as the saving of soap, which is proportional to the hardness of the untreated water; whiter and cleaner clothes (even when synthetic detergents are used); prevention of damage and discoloration by insoluble soaps formed as curds; less wear on clothing as a result of shorter washing period; greater comfort and convenience in washing and bathing; and the elimination of calcium and magnesium salt deposits as a scale within the plumbing and heating systems. There are some who hold that soft water is essential for the cooking of a few foods, such as peas and beans, which when cooked in hard water become tough and rubbery, because of the formation of certain insoluble calcium compounds, which too are difficult to digest.

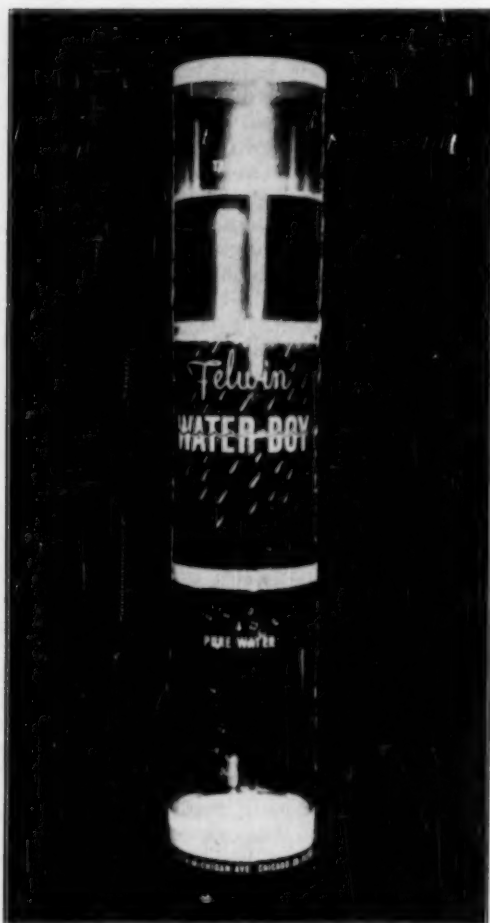


Figure 1—Tap water is added at the top of the Water-Boy unit, and after passing slowly through the ion exchange resins, purified water collects in the bottom section from which it can be drained by means of a short piece of rubber tubing.

Coffee made with softened water, on the other hand, is likely to have a poor flavor.

The chief disadvantage of softened water is that the calcium has been removed and replaced by sodium, and in extremely hard-water areas the sodium content will thus be considerable. Drinking water that does not contain sodium salts is particularly important for persons with certain heart conditions, common particularly among older persons. Investigations have shown that many having a heart condition will be well advised to avoid foods with salt, and sodium in other forms, and water which contains sodium. A healthy person can throw off the sodium in his diet as rapidly as necessary, but a heart patient has difficulty in eliminating sodium and often tends to put on weight through increased retention of water in his tissues when there is even an ordinary amount of sodium in the diet or in the water supply. This added weight increases the load on the already overburdened and weakened heart. Furthermore, scientific studies have established a relationship unfavorable to the use of soft water for drinking and cooking and have shown that when the drinking water is soft there is a marked tendency toward increased deficiencies in tooth and bone formation, and increased tooth decay.

In general, if a water-softening system is installed in a home, it will be advisable to provide a cold-water tap through which water that has not been softened is supplied for drinking and cooking.

Since calcium and magnesium are removed by the use of water softeners, softened water will not contain sufficient scale-forming compounds to protect the hot-water system from rusting and corroding, and softened water may be more corrosive to pipes and tanks.

"Water Conditioners"

So-called "water conditioners," which are to be installed in the service line, should not be relied on to soften water. A number of units are now being advertised, and the literature does not explain how these work except in general terms, often persuasive to the layman and non-expert. Claims such as "an amazing new way to make hard water act 'soft as silk' without chemical change" and "...conditions hard water by improving its physical characteristics by use of a Magic New Processed Metal" should be a clue to the reader of the advertisement to question the merits of the product.

Faucet Units

Portable units which can be attached to the water faucet for softening water supplies, al-

though convenient to use, are not fully effective, and are not economical in use.

Small Portable Water-Purifying Units

Water for use in a steam iron, automobile battery, and other uses requiring a greater degree of purity than provided by ordinary tap water can be bought at some local gasoline service stations and auto accessory stores, or made in the home with small, portable units sold expressly for this purpose. Two such units (see Figures 1 and 2) using ion exchange resins are the *Water-Boy* and the *Deeminac*. Both units are intended to convert tap water into mineral-free water by filtering through a bed of ion exchange resins. The resulting water of the *Deeminac* is claimed to be the "chemical equivalent of triple distilled" water, while the *Water-Boy* merely claims "pure water." Both are intended to provide water suitable for direct use in the batteries of automobiles, in home steam irons, or for any similar application where mineral-free water is required. When the units are exhausted, indicated by a gradual change in color of the



Figure 2 — The *Deeminac* consists of two unbreakable polyethylene containers; the smaller one holds the ion-exchange medium, and the larger one is a container for ordinary tap water. When the larger bottle is squeezed, the water flows through the ion exchange resin and delivers the treated water at the pouring spout on the smaller container.

resin from blue to brown, the *Deeminac* cartridge is replaced, whereas with the *Water-Boy* a complete softener unit must be purchased.

In CR's test on the effectiveness of these two appliances, it was found that the capacity of the *Water-Boy*, at a cost of \$2.25 per unit, was about 63 grains to the point of complete color change, and although the device still provided water of zero hardness at this point, the color change had actually reached the line indicating exhaustion after approximately 50 grains of hardness had been removed from the water. At the point of almost complete color change, the pH of the treated water was approximately 4, indicating a relatively acid water. The repeated use of water having a pH as low as the water provided by the *Water-Boy* will surely do no good to the interior of a steam iron; it is possible that the acidity may even cause some harm, in time. (Distilled water is neutral; its pH is about 7.)

A new *Deeminac* cartridge, at \$1.25 plus 50 cents for the plastic bottle, provided water with a hardness of about $\frac{1}{2}$ grain per gallon, and after it had removed approximately 17 grains of hardness, the unit provided water of about $1\frac{1}{2}$ grains per gallon hardness — which is not a high degree of purity. The hardness increased slightly with

progressive use and, after 3 gallons of 17-grain water were treated, the water passing through the filter was about the same hardness as that prior to treatment. While a change in color of the resin, signifying exhaustion, was claimed on both products, the *Deeminac* cartridges, even though supplying water of no purer quality than was received from the tap, failed to change color. On this account, the user would have no way of knowing that the water was passing through the cartridge without being softened appreciably unless the water were tested chemically for hardness from time to time. The quality of the water did improve somewhat when it was squeezed through at a very slow rate, but most users, of course, would not realize this and would use the needed amount of water as fast as the unit could supply it.

The price of distilled water, available at auto accessory stores or service stations, will range from 20 cents to 90 cents a gallon. The question of whether to buy distilled water or a water-softening unit such as the *Water-Boy* will depend on two things, the price per gallon of available distilled water and the hardness of the tap water which is to be softened. Knowing the water hardness in grains per gallon, one can calculate the number of gallons of soft water one *Water-Boy* unit is likely to provide, simply by dividing that figure into 50, the approximate capacity of the *Water-Boy*. For example, if the tap water has a hardness of five grains per gallon (known as "moderately soft" water), approximately 10 gallons of softened water can be expected, at a cost of about 23 cents per gallon. However, if the hardness of the tap water is 25 grains per gallon, corresponding to very hard water (425 ppm. hardness), only two gallons of water will be softened, and in that case the cost would be about \$1.15 per gallon.

B. Intermediate

Felwin Water-Boy (Felwin Inc., 11146 S. Michigan Ave., Chicago 28) Complete unit \$2.25, with 5.1 fl. oz. reservoir for untreated water. Considered convenient to use, and provided water of suitable chemical quality to the point when, as directions provided, the color change to brown reached line on container indicating exhaustion. Capacity, 50 grains. (Table on pages 29 and 30 shows capacities of typical large home water-softening units, for which the minimum is around 20,000 grains).

C. Not Recommended

Deeminac, Model 6-2 (Crystal Research Labs., Inc., 29 Allyn St., Hartford 3, Conn.) One 2-oz. cartridge, \$1.25, plus 50c for a 6.5 fl. oz. plastic bottle. Two tested were not nearly so effective as *Water-Boy* in providing soft water.

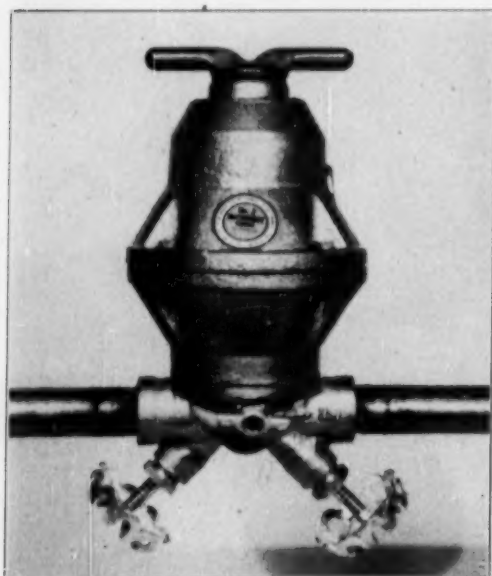


Figure 3 — Pictured above is the No. 2 Micromet Feeder for use in homes having city water and homes having deep-well reciprocating pumps. Other Micromet Feeders available are No. 6-G for use with deep-well jet pumps and all shallow-well pump systems, and No. 1 for use only in areas having very soft water. Prices are \$18.75, \$24.75, and \$38.50, respectively, plus cost of installation.

Another Water Treatment Device

Not intended to soften or filter the water but to be used for the prevention of "red water" caused by dissolved iron in the water, the *Micromet Feeder*, Figure 3, sold by Calgon, Inc., Hagan Bldg., Pittsburg 30, through plumbing dealers, can be installed ahead of the pressure tank on a well-pump system. The manufacturer also recommends installing the unit on the cold-water line just ahead of the heater for control of lime scale or corrosion. CR deems it advisable

that consumers should specify that the piping installation shall be so arranged that the water for drinking and culinary use will be water that has not been treated with the added *Micromet* material. The chemical substance used in this device is a slowly-dissolving phosphate glass which must be replenished monthly, either by the householder or by a local dealer on a service basis. The chemical sells at \$2.40 to \$3 per pound, and it is claimed that about three pounds per year will be required by the feeder for average troublesome water.

Since water-softening equipment must be purchased to meet the requirements of the place where it is to be used, no recommendations can be made here that will apply to all home conditions. However, in order that those contemplating purchase of such equipment may have a better understanding of the different sizes of units available and their prices, a table showing capacities, flow rate, salt requirements, and approximate price of a number of leading makes of softeners has been prepared. This table, although containing only a partial list of the manufacturers who sell water-softening equipment, will enable the householder to get an idea of the prices of units which will meet his requirements. Installation charges are extra. Additional information about type and details as to finish, floor space required, etc., can and should be obtained from the manufacturers.

Units which will accommodate the low flow rate of 5 gallons of water per minute are considered suitable only for small families.

Manufacturer or Distributor	Capacity between Regenerations, Thousands of Grains	Approx. Flow Rate, Gal. per Min.	Salt Needed per Regeneration, lb.	Approximate Price of Equipment, \$
Culligan Zeolite Co., 197 Sherman Ave., Northbrook, Ill.	20	3.5	—	99, 139
	25	3.5	—	185
	25	6	—	189
	35	4.5	—	129, 158
	40	6	—	139, 179
	50	6	—	245
	60	8.5	—	177, 215
	65	8	—	198, 218
	75	11	—	214, 257
	90	14	—	249, 298
	95	11	—	259, 299
	125	14	—	343, 388
	155	18	—	419, 465
The Duro Co., Dayton 1, Ohio	20	5	17	101 plus shipping
	20	5	10	133-235
	30	7	25	118 " "
	30	7	15	147-261 " "
	45	10	38	139 " "
	45	10	22	167-290 " "
	67	12	34	174-390 " "
	90	12	45	358-446 " "
	120	12	60	474-572 " "
	180	24	45	677-852 " "
	240	24	60	921-1118 " "
	31	6	18	260 " "
	42	7	18	290 " "
	64	9	25	422 " "
	86	12	34	492 " "
Elgin Softener Corp., 142 N. Grove Ave., Elgin, Ill.	22	5	13	142-182
	30	5	18	155-193
	45	7	27	180-320
	75	14	45	245-300
	100	18	60	303-363
	50	7	30	263
	60	7	36	293
	90	10	54	355
	160	17	96	542
	185	20	110	645

Manufacturer or Distributor	Capacity between Regenerations, Thousands of Grains	Approx. Flow Rate, Gal. per Min.	Salt Needed per Regeneration, lb.	Approximate Price of Equipment, \$
Elgin Softener Corp. (continuation)	35	7	13	355
	54	12	35	465
	90	17	43	535
Fairbanks-Morse & Co., Fairbanks-Morse Bldg., Chicago 5	30	—	15	—
	45	—	25	—
	60	—	30	—
HomeEase Products Co., 52 Iowa Ave., Paterson 3, N.J.	32.5	—	—	188
	44	—	—	222
	70	—	—	229
	95	—	—	276
Montgomery Ward & Co.	20	—	—	66 plus shipping
	40	—	—	92-160 " "
	60	—	—	125, 185 " "
	80	—	—	155, 218 " "
The Permutit Co., 330 W. 42 St., New York 18	25	10	10	253
	36	8	14	—
	38	10	25	—
	50	10	20	361
	75	—	—	495
	66	15	25	—
	68	17.5	45	470, 659
	120	26	45	589, 778
	132	34	88	778, 967
	228	50	88	999, 1187
Red Jacket Mfg. Co., Davenport, Iowa	20	4.5	10	138, 169
	32	6	16	100-187
	48	8.5	24	177, 225
	64	10.5	32	258
	35	6	18.5	118-221
	40	8	—	123
	50	8	26	143-258
	60	9	—	151
	70	—	—	408
	72	10	—	174
	80	11	—	185
	90	11	45	201-345
	100	—	—	476
	105	11	—	220
	120	14	60	421
	180	20	90	575, 645
	240	25	120	737, 788
	360	—	—	1088
	480	—	—	1392
Refinite Corp., P.O. Box 1312, Omaha, Neb.	30	10	18	189, 218
	50	10	30	225, 254
	75	10	45	264
	105	10	63	297
Sears, Roebuck & Co.	18	—	—	73 plus shipping
	36	—	—	100 " "
	54	—	—	127 " "
	40	—	—	163 " "
	60	—	—	200 " "
	80	—	—	235 " "
Western Filter Co., 4545 E. Sixtieth Ave., Denver 16	48	—	—	189, 209
	64	—	32	206, 231
	96	—	48	276-383
	112	—	—	368
	128	—	—	389, 427
	192	—	—	607
Zero Water Softener Mfg. Co., 4985 Elston Ave., Chicago 30	30	—	15	—
	60	—	30	—
	80	—	40	—
	120	—	60	—
	180	—	90	—

Ratings of Motion Pictures

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines — some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Cue, Daily News (N.Y.), The Exhibitor, Harrison's Reports, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency List, Newsweek, New York Herald Tribune, New York Times, New York World-Telegram & Sun, Parents' Magazine, Release of the D.A.R., Preview Committee, Reviews and Ratings by the Protestant Motion Picture Council, Time, Times Herald (Washington, D.C.), Variety (weekly), Weekly Guide to Selected Motion Pictures (National Board of Review of Motion Pictures, Inc.).

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), or C (not recommended) on its entertainment values.

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

adv—adventure	mel—melodrama
biog—biography	mus—musical
c—in color (Technicolor, Cinecolor, Trucolor, Magnacolor, Vitacolor, etc.)	mys—mystery
car—cartoon	nov—dramatization of a novel
com—comedy	rom—romance
cri—crime and capture of criminals	sci—science fiction
doc—documentary	soc—social problem drama
dr—drama	trap—travelogue
fan—fantasy	war—dealing with the lives of people in wartime
hist—founded on historical incident	wes—western

A	B	C			
—	6	—	Abbott and Costello Meet Captain Kidd.....	mus-com-c	AYC
1	4	—	Above and Beyond.....	war-dr	AY
—	6	11	Affair in Trinidad.....	mel	A
—	1	4	Affairs of a Model (Swedish).....	dr	A
—	3	5	Against All Flags.....	adv-c	AY
2	8	2	Amazing Mr. Fabre, The (French).....	biog	AY
—	3	4	Androcles and the Lion.....	com	A
—	2	3	Angel Face.....	cri-mel	A
—	2	4	Angel Street (British).....	dr	A
—	2	4	Angelo in the Crowd (Italian).....	soc-dr	A
—	4	1	Anna (Italian).....	dr	A
—	6	3	Apache War Smoke.....	wes	A
1	3	1	April in Paris.....	mus-com-c	A
1	5	1	Arctic Flight.....	mel	AYC
—	—	5	Army Bound.....	mel	AYC
—	10	6	Assignment — Paris.....	cri-mel	AY
—	—	3	Babes in Bagdad.....	adv-c	A
3	3	—	Bad and the Beautiful, The.....	dr	A
—	4	3	Barbed Wire.....	mus-wes-c	AYC
—	4	4	Battle Zone.....	war-mel	A
3	9	—	Beauty and the Devil.....	dr	A
—	8	7	Because of You.....	dr	A
—	—	—	Because You're Mine.....	mus-dr-c	AYC
—	—	4	Bela Lugosi Meets a Brooklyn Gorilla.....	cri-com	AYC
—	3	6	Berliner, The.....	fan	A
—	5	10	Beware, My Lovely.....	dr	A
—	8	9	Big Jim McLain.....	mel	A
4	13	—	Big Sky, The.....	wes-mel	A
—	3	7	Black Castle, The.....	cri-mel	A
—	5	—	Blackbeard, the Pirate.....	adv-c	A
—	7	2	Blazing Forest, The.....	mel-c	AYC
—	13	3	Bloodhounds of Broadway.....	mus-com-c	A
—	3	2	Blue Canadian Rockies.....	wes-c	AYC
—	9	1	Bonzo Goes to College.....	com	AYC
—	9	1	Brandy for the Parson (British).....	com	AYC
—	6	2	Brave Don't Cry, The (British).....	dr	A
—	3	2	Breakdown.....	mel	A
6	5	1	Breaking Through the Sound Barrier (British).....	dr	AY
—	—	3	Bwana Devil.....	mel-c	A
—	—	7	Cage of Gold (British).....	mys-mel	A
—	4	1	Cairo Road (British).....	mel	A
—	—	8	Captain Black Jack (British).....	mel	A
—	5	4	Captain Pirate.....	adv-c	A
—	1	7	Captive Women.....	sci	A
—	6	5	Caribbean.....	adv-c	A
—	4	4	Casque d'Or (French).....	dr	A
—	2	3	Cattle Town.....	mus-wes	AYC
5	5	—	Cinerama.....	doc-c	AYC
—	2	2	Cliff of Sin, The (Italian).....	dr	A
1	4	1	Come Back, Little Sheba.....	dr	A
—	13	4	Crimson Pirate, The.....	adv-c	AYC
—	6	4	Cripple Creek.....	mel-c	AYC
—	2	2	Cupboard Was Bare, The (French).....	com	A
—	1	2	Danger is a Woman (French).....	mel	A
—	2	1	Dark Man, The (British).....	cri-mel	AYC
—	2	1	David (British).....	doc-dr	AYC
—	1	5	Desert Pursuit.....	mel	AYC
—	6	2	Desperadoes' Outpost.....	wes	AYC
—	3	2	Desperate Search.....	mel	A
—	11	5	Devil Makes Three, The.....	mys-mel	A
—	5	12	Don't Bother to Knock.....	soc-dr	A
2	9	5	Dreamboat.....	com	A
—	9	4	Duel at Silver Creek, The.....	wes-c	AYC
2	7	3	Eight Iron Men.....	war-dr	A
1	9	5	Everything I Have is Yours.....	mus-com-c	A
—	4	2	Face to Face.....	dr	A
—	1	3	Fall of Berlin, The (USSR).....	war-dr-c	A
—	3	1	Fargo.....	wes	AYC
1	6	2	Father's Dilemma (Italian).....	com	AYC
1	8	3	Fearless Fagan.....	war-com	AYC
—	2	2	Feudin' Fools.....	com	AYC
—	6	3	Flat Top.....	war-mel-c	AYC
—	5	4	Flowers of St. Francis (Italian).....	doc-dr	AYC
2	4	1	Forbidden Games (French).....	war-dr	A
1	9	7	Fourposter, The.....	dr	A
—	2	4	French Way, The (French).....	mus-com	A
—	1	3	Gods of Bali.....	doc	AY
—	—	3	Gold Fever.....	mel	AYC
—	3	11	Golden Hawk, The.....	adv-c	A
—	8	3	Hangman's Knot.....	wes-c	A
5	9	1	Hans Christian Anderson.....	mus-com-c	AYC

A	B	C				A	B	C			
1	12	3	Happy Time, The	com	A	1	6	1	Rose Bowl Story, The	dr-c	AYC
—	6	2	Hellgate	mel	A	—	2	6	Rough, Tough West, The	mus-wes	AYC
—	2	3	Hiawatha	hist-dr-c	AYC	—	6	4	Savage, The	mel-c	A
—	—	3	Hideout, The (British)	cri-mel	A	—	7	2	Savage Triangle (French)	dr	A
—	4	—	Hold That Line	com	AYC	—	—	4	Scotland Yard Inspector (British)	cri-mel	A
—	3	9	Holiday for Sinners	dr	A	—	2	5	Sea Tiger	cri-mel	A
—	8	4	Horizons West	wes-c	A	—	3	2	Secret Flight (British)	war-dr	A
—	11	6	Hour of 13, The	mys-mel	A	—	1	5	Secret People (British)	cri-mel	A
—	4	12	Hurricane Smith	adv-c	A	—	1	4	Sky Full of Moon	wes-c	A
—	3	4	Invasion, U.S.A.	war-dr	A	—	3	11	Snows of Killimanjaro, The	dr-c	A
—	4	8	Iron Mistress, The	mel-c	A	—	12	6	Somebody Loves Me	mus-com-c	A
2	13	1	Island Rescue (British)	war-com	AYC	—	11	2	Something for the Birds	com	A
2	9	2	It Grows on Trees	fan	AYC	—	4	8	Son of Ali Baba	adv-c	A
—	4	2	Julius Caesar	dr	AYC	1	10	5	Son of Paleface	mus-com-c	A
—	1	5	Junction City	mus-wes	AYC	—	4	2	South Pacific Trail	mus-wes	AYC
—	3	5	Jungle, The	mel-c	AYC	—	10	4	Springfield Rifle	war-mel-c	AYC
2	9	6	Just for You	mus-com-c	A	2	6	—	Stars and Stripes Forever	mus-biog-c	AYC
—	6	4	Kansas City Confidential	cri-mel	A	—	9	6	Steel Trap, The	cri-mel	A
—	—	6	Katy's Love Affair (British)	dr	A	1	5	1	Stooge, The	mus-com	AYC
—	1	5	Kid from Broken Gun, The	wes	AYC	—	4	3	Stop, You're Killing Me	mus-com-c	A
—	1	3	La Forza del Destino (Italian)	mus-dr	A	2	11	5	Story of Will Rogers, The	biog-c	AYC
—	1	10	Last Train from Bombay	cri-mel	AYC	—	2	7	Strange Fascination	dr	A
—	4	—	Lawless Breed	wes-c	AYC	—	4	4	Strange Ones, The (French)	dr	A
—	6	3	Leonardo da Vinci	doc-c	AY	2	12	2	Stranger in Between, The (British)	dr	A
—	2	3	Life Begins Tomorrow (French)	dr	A	—	3	—	Streets of Sorrow (Italian)	dr	A
—	—	3	Life of Donizetti, The (Italian)	mus-biog	A	—	2	4	Strollers, The (French)	dr	A
1	13	3	Limelight	dr	A	1	14	4	Sudden Fear	mel	A
—	1	9	Lost in Alaska	com	A	—	2	1	Target Hong Kong	mel	A
—	4	3	Loyola — The Soldier Saint (Spanish)	biog	AYC	2	14	2	Thief, The	cri-mel	A
—	9	7	Lure of the Wilderness	mel-c	AYC	—	6	6	Thief of Venice, The (Italian)	adv	A
—	15	1	Lusty Men, The	mel	A	—	1	4	Thirst of Men, The (French)	dr	A
1	8	4	Magic Box, The (British)	biog-c	AY	—	17	—	Three for Bedroom C	com-c	A
—	3	3	Magic Sword, The (Yugoslav)	fan	AYC	—	2	6	Three Sinners (French)	dr	A
—	4	—	Meet Me at the Fair	mus-com-c	AYC	—	2	2	Tropic Zone	mel-c	A
2	13	4	Merry Widow, The	mus-com-c	A	—	5	—	Thunder in the East	mel	A
—	3	—	Merry Wives of Windsor (German)	mus-dr	A	—	2	4	Thunderbirds	war-dr	AYC
—	9	2	Million Dollar Mermaid	biog-c	AYC	—	3	1	Thundering Caravans	wes	AYC
1	12	3	Miracle of Our Lady of Fatima, The	dr-c	AYC	—	2	5	Topaze (French)	com	A
1	8	8	Monkey Business	com	A	—	6	1	Toughest Man in Arizona	wes-c	A
—	3	6	Montana Belle	mus-wes-c	A	—	3	—	Train of Events (British)	dr	A
—	1	3	Montana Incident	wes	AYC	—	1	5	Tromba, the Tiger Man (German)	mel	AYC
—	4	—	Mr. Walkie-Talkie	war-com	AYC	—	1	5	Tropical Heat Wave	cri-com	A
—	5	10	My Man and I	soc-dr	A	1	9	5	Turning Point, The	cri-mel	A
1	6	1	My Pal Gus	com	A	—	3	1	Two Cents' Worth of Hope (Italian)	dr	A
—	3	6	My Wife's Best Friend	com	A	1	6	3	Under the Paris Sky (French)	dr	A
—	1	12	Night without Sleep	cri-dr	A	—	13	1	Under the Red Sea	doc	AYC
—	2	2	No Time for Flowers	mys-mel	A	—	7	5	Untamed Frontier	wes-c	A
2	10	3	O. Henry's Full House	dr	A	—	—	5	Untamed Women	mel	A
—	7	1	Old Oklahoma Plains	mus-wes	AYC	—	4	—	Volcano (Italian)	dr	A
—	10	6	One Minute to Zero	war-mel	A	—	1	9	Voodoo Tiger	adv-c	AYC
—	10	7	Operation Secret	war-dr	A	—	3	2	Voyage to America (French)	com	A
—	5	5	Outpost in Malaya	mel	A	—	6	3	WAC from Walla Walla, The	com	AY
—	6	7	Park Row	dr	A	—	2	3	Wagon Team	wes-c	AY
—	8	2	Path of Hope (Italian)	dr	A	2	10	6	Washington Story, The	dr	AYC
2	9	5	Plymouth Adventure	dr-c	AYC	—	7	8	Way of a Gaucho	mel-c	A
1	5	3	Pony Soldier	war-mel-c	AY	2	12	4	We're Not Married	com	A
6	11	—	Prisoner of Zenda, The	adv-c	AY	2	8	5	What Price Glory?	mus-war-dr-c	A
1	13	2	Promoter, The (British)	com	A	1	15	2	Where's Charley?	mus-com-c	AYC
—	7	4	Raiders, The	wes-c	A	—	7	8	White Corridors (British)	dr	A
—	8	2	Rainbow 'Round My Shoulder	mus-com-c	AYC	—	3	2	White Line, The (Italian)	propaganda-dr	A
—	5	—	Ride the Man Down	wes-c	AYC	—	7	6	Willy and Joe Back at the Front	war-com	A
—	6	3	Ring, The	soc-dr	AY	—	5	7	Woman of the North Country	mel-c	A
2	4	—	Road to Bali	mus-com-c	AYC	—	4	5	Yankee Buccaneer	adv-c	AYC
—	—	—	—	—	—	—	9	5	You for Me	com	A
—	—	—	—	—	—	—	2	5	Young Wives' Tale (British)	com	A

The Consumers' Observation Post

(Continued from page 4)

them planted by experts at State Colleges of Agriculture, Botanical Gardens, and other agricultural agencies. The St. Louis Better Business Bureau in a report on the project revealed that only about half of the bulbs showed any life at all, and "only an inappreciable per cent produced blooms." Furthermore, despite the company's "money back guarantee," dissatisfied customers informed the Bureau that their requests for refunds were completely ignored, and in some cases they were sent so-called "credit slips." With the spring planting season not far away, tulip lovers may well profit by the Better Business Bureau's excellent studies in this field.

* * *

SERIOUS BLOOD DISFUNCTION may result from habitual use of preparations containing acetanilide, warned two physicians last fall in a report that appeared in the Journal of the American Medical Association. Dr. T. B. Reynolds of Hammersmith Hospital, London, and Dr. A. G. Ware of the University of Southern California School of Medicine, both warned that habitual users of Bromo-Seltzer and Dr. Miles Anti-Pain Pills might develop

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sulfhemoglobinemia, a condition in which the oxygen-carrying function of the red corpuscles is impaired. These are just two of a number of "patent medicines" that contain acetanilide. The difficulty in recognizing and diagnosing the disease is occasioned by the fact that, according to the two physicians, habitual users of such preparations rarely will admit to using them.

* * *

THE HOME APPLIANCE that is selling like the proverbial hot cakes is the automatic clothes dryer. Dryers are selling at the rate of six to every ten automatic washers in certain markets, according to a sales promotion manager of one large appliance manufacturer. He noted that there were 26 different makes of automatic dryers on the market and some 15 more expected in the near future. In three years in his own company, dryers had jumped from 10 percent to nearly a quarter of their sales volume on a dollar basis. In 1953, the figure is expected to increase to nearly 50 percent.

* * *

NEW OR NEWLY TESTED:

Magnatray Magnetic Auto Utility Tray (Glass Laboratories, Inc., 407 Douglass St., Brooklyn 17, N.Y.), \$1.40. This gadget is a small box with a metallic aluminum-like finish that is designed to fit on an automobile dash to hold small items that may be instantly needed, such as keys, coins, ferry or bridge tickets, cigarettes, a small notebook and pencil, a few facial tissues, etc. It is held in place by an Alnico magnet and thus is easily removed or returned to the desired position. It has a felt covering on the bottom to prevent scratching of the car finish when it is moved. It was found to be quite sturdy and functional, and a convenience for those who have need to put their hands on certain odds and ends quickly in driving a car.

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Phonograph Records

BY WALTER F. GRUENINGER

Please Note: In the ratings AA indicates highly recommended; A, recommended; B, intermediate; C, not recommended. Although nearly all new releases of serious music are heard, space narrows comment, generally, to items which merit high ratings.

Bach: *Cantata No. 11* ("Ascension" Oratorio). Soloists with the Swabian Choral Singers and the Stuttgart Bach Orchestra under Grischkat. Lyricord LL 34. \$5.95. Among the best Bach oratorios. Soloists are uneven but the direction is sturdy and the chorus and orchestra are enthusiastic if not always faultless. Clear, brilliant recording.

Interpretation A

Fidelity of Recording AA

Bach: *Three Chorales and Pastorate*. Orchestra of the Vienna Opera under Krueger. And *Ten Preludes*, Bernardo Segall (piano). New Music NRLP 103. \$5.75. An interesting Bach record presenting transcriptions by Castro and Gui for orchestra and Preludes from the "Well-Tempered Clavier." Both sides are skillfully played, and the recording, though somewhat hard, is adequate in other respects. Best of half a dozen new releases by this firm with Pizzetti's *Concerto dell'Estate* the runner-up.

Interpretation AA

Fidelity of Recording A

Beethoven: *String Quartets*. Budapest Quartet. *Early Quartets*, Vol. 1, 6 sides, Columbia Set SL 172. \$16.35. *Middle Quartets*, Vol. 2, 8 sides, Columbia Set SL 173. \$21.80. *Late Quartets*, Vol. 3, 10 sides, Columbia Set SL 174. \$27.25. The outstanding master of the string quartet form was Beethoven. And here is his total output of 16 quartets and the *Grosse Fuge* by the group which has no peer today in the interpretation of these quartets. What matter if here and there a rough phrase is discernible? There are faults in nearly every performance of a major work and when 17 works are performed over 24 LP's, the risk is multiplied. But, overall, the interpretation is artful, robust, yet sensitive—in keeping with the music. And the recording in the Congressional Library on Stradivari instruments is full, resonant, and wide range. Altogether—a bonanza! Each volume is available separately.

Interpretation AA

Fidelity of Recording AA

Beethoven: *The Sonatas for Violin and Piano*. Joseph Fuchs (violin), Artur Balsam (piano). 10 sides, Decca DX 150. \$29.25. The 10 sonatas. Chamber music playing of a high order with a few exceptions—the tendency to play fast movements too fast, the first movements of the "Spring Sonata" and Op. 96 never get beneath the surface, some audible left-hand shifts of Fuchs. Recording extraordinary in its clarity, range, and pleasing depth.

Interpretation A

Fidelity of Recording AA

Mendelssohn: *The First Walpurgis Night*. Netherlands Philharmonic Choir, Orchestra and Soloists under Ackermann and *Five Songs*, Uta Graf (soprano). Concert Hall Society CHS 1159. \$5.95. Stunning performance and good quality, low-level recording of a large-scale cantata based on Goethe's poem. The songs are beautifully sung by Miss Graf and very well recorded. Best of half a dozen recent releases by this firm.

Interpretation AA

Fidelity of Recording AA

Strauss: *Burleske & Dohnanyi: Variations on a Nursery Theme*. Fabienne Jacquot (piano) with the Philharmonia Orchestra under Fistoulari. MGM E 3004. \$4.85. *Burleske* needs a little sharpening for a completely satisfactory performance but the delightful variations are admirably played. Brilliant recording.

Interpretation A

Fidelity of Recording AA

Verdi: *Don Carlo*. Caniglia, Stignani, Picchi, Rossi-Lemeni, etc., with the Orchestra and Chorus of Radia Italiana (Rome) under Previtali. 8 sides, Cetra-Soria

Set 1234. \$23.80. Intense, somber, uneven work. The featured singers are impressive with Stignani, Picchi, Neri, and Rossi-Lemeni outstanding. Altogether a solid performance. Excellent recording. One of the finest sets of the season.

Interpretation AA

Fidelity of Recording AA

Verdi: *Il Trovatore*. Milanov, Bjoerling, Barbieri, Warren, etc., under Cellini. 4 sides, RCA Victor LM 6008. \$11.14. Bjoerling and Warren are superb as Manrico and Count Di Luna. But the female principals are not always up to them, particularly Barbieri who sings flat. Cellini conducts with firm dramatic authority and skillful musical virtue. Full bodied, rich recording. . . This set is far superior to the new Capitol set in which Stella Roman as Leonora is unsteady and Sylvia Marlowe as Azucena is generally poor. And you can say the same for the quality of Capitol's *Aida* with the identical principals.

Interpretation A

Fidelity of Recording AA

Wagner: *Lohengrin*. Schech, Klose, Vincent, Boehm, Böhme, Chorus and Orchestra of the Munich State Opera under Kempe. 10 sides, Urania Set URLP 225. \$30.25. As opera sets go, this is good—which is not to say perfect. But the cast is splendid and the excitement and drama are fully communicated. George Vincent, a young American, is generally superior as Lohengrin though at times he lacks the ease of execution of a great singer. Margaret Klose as Ortrud and Kurt Böhme as King Henry join him at the top of the cast. Others are not that skilled. The direction of Kempe is firm and fully up to the task at hand. The recording ranks among the best of the Urania label. An occasional lack of balance with the voice too forward and a little pitch wobble are the only objections. Warmth, depth, and range are commendable.

Interpretation A

Fidelity of Recording A

OTHER LP'S HIGHLY RECOMMENDED (for interpretation and for fidelity)

BARTOK — **Gibbons:** *Two Fantasias & Locke: Consort of Ffowre Parts* (No. 6) & **Purcell:** *Pavane and Chacony*. New Music String Quartet. BRS 913. *Folk songs of Hungary*, Vol. 2. Leslie Chabay (tenor). BRS 914.

CAPITOL — **Mozart:** *Serenade No. 10* (K361). Los Angeles Woodwinds under Steinberg. P 8181.

COLUMBIA — **Berners:** *Suite from Triumph of Neptune*. Philadelphia Orchestra under Beecham & **Arnell:** *Punch and the Child*. Royal Philharmonic Orchestra under Beecham. ML 4593.

Mozart: *Sonatas for Violin and Harpsichord*. Schneider and Kirkpatrick. SL 152.

Villa-Lobos: *Erosion & Dello Joio: Triumph of St. Joan Symphony*. Louisville Orchestra under Whitney. ML 4615.

Dancers of Bali. Gamelan Orchestra. ML 4618.

DECCA — **Bizet:** *Carmen Suites Nos. 1 and 2*. Stadium Concerts Symphony Orch. under Dell'Isola. DL 4029.

Strauss: *Dance of the 7 Veils and Rosenkavalier Waltz*. Stadium Concerts Symphony Orch. of N.Y. under Smallens. DL 4032.

An Andrés Segovia Program (guitar). DL 9647.

RCA VICTOR — **Menotti:** *Amahl and the Night Visitors*. Original Cast of the NBC Telecast. LM 1701.

Mozart: *Concerto No. 5*. Heifetz with the London Symphony Orch. under Sargent & **Beethoven:** *Romances Nos. 1 and 2*. Heifetz (violin). LM 9014.